

## 6. GALAGO (OTOLICNUS) TENG.

*Galago teng*, Sundevall, Kongl. Vetensk. Akad. Handling. 1842, p. 201.

*Otolicnus galago*, var. *sennariensis*, Wagner, Schreb. Suppl. v. p. 158.

## Subgenus 4. HEMIGALAGO, Dahlbom (1856).

*Characters*.—Size very small; muzzle shorter than orbital opening; first upper premolar not canine-like; angle of mandible produced downwards as well as backwards; tarsus very long; præmaxillæ produced strongly forwards in front of incisors.

## GALAGO (HEMIGALAGO) DEMIDOFFII.

*Hemigalago demidoffii*, Dahlb. Studia Zool. p. 230; Coquerel, Rev. et Mag. de Zool. (1859) xi. p. 457.

*Galago demidoffii*, Fischer, in Act. de la Soc. des Natur. de Mosc. i. p. 24. f. 1 (1806); Syn. p. 68; Desm. Mamm. p. 104, sp. 128; Isid. G. St.-Hil. Cat. des Prim. p. 81; Gray, P. Z. S. 1863, p. 148 (skull); Peters, P. Z. S. 1863, p. 380, pl. xxxv.

*Otolicnus demidoffii*, Wagner, Schreb. Suppl. v. p. 160.

*O. peli*, Temm. Esquis. Zool. Leyden (1853), 1<sup>ère</sup> partie, Mamm. p. 42.

*Galagoides demidoffii*, A. Smith, S. Afr. Journ. ii. p. 32 (1835).

*Galago murinus*, Murray, Edinb. Phil. Journ. (with plates) new ser. x. (1859) p. 243; xi. (1860) p. 99.

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December 13, 1864.

John Gould, Esq., F.R.S., in the Chair.

Prof. Owen, F.R.S., read a further memoir on *Dinornis*, being the ninth of a series of contributions to the Society's 'Transactions' on this subject. The present section contained the description of the skull, atlas, and scapulo-coracoid bone of *Dinornis robustus*, Owen, and was founded partly on materials submitted to his examination by Dr. D. S. Price, consisting of a mutilated cranium and other bones which had been obtained from the bottom of a crevice about 50 feet deep in a limestone rock, situated a few miles south of Timaru, in the Middle Island of New Zealand, and partly on a skull found with a skeleton almost entire in the valley of Manuherikia, Otago. The skeleton last referred to had been disinterred by some gold-miners from one of the large basins of ancient tertiary date which characterize the auriferous region of the interior of the province of Otago, and had been transmitted to the Museum of the Yorkshire Philoso-

phical Society at York, the Council of which had placed it at Prof. Owen's disposal for the purpose of description.

Mr. Bartlett exhibited a curious variety of the Common Partridge (*Perdix cinerea*) from the collection of Mr. J. Gatcombe. The specimen was stated to be one of three similar individuals lately obtained in a wild state in the neighbourhood of Paris.

The following papers were read :—

1. LIST OF MAMMALIA MET WITH IN ZAMBESIA, EAST TROPICAL AFRICA. BY JOHN KIRK, M.D., F.L.S.

In arranging the following enumeration of Mammals, with localities where observed, I have availed myself of the published work of Dr. Peters, and in general followed his classification.

The collection of mammals was very small, and seems to include only two undescribed species, of which one is a Bat, of the genus *Nycticejus*, very distinct from either of those figured by Dr. Peters, the other, more doubtful, being the Antelope mentioned by Dr. Peters under the name of *Antilope moschata*, but which seems to me to differ from that animal specifically.

I have no hesitation in recognizing *Tragelaphus spekii*, Sclater, as identical with the long-known "Nakong," of which full accounts have been given by various travellers, and specimens brought to England. Notwithstanding this, it had not been described scientifically until Dr. Sclater lately characterized it from specimens met with by Capt. Speke in the swampy regions where the Nile takes its rise. These resemble in physical features the country south, from which this Antelope was first obtained.

It is interesting to find the same animals appear as explorers advance from north and south, suggesting a tolerably level continuous marshy region embracing the sources of the main African rivers.

SIMILÆ.

1. CERCOPITHECUS ERYTHRARCHUS, Peters.

Quilimane ; Luabo.

2. CERCOPITHECUS PYGERYTHRUS (F. Cuvier).

Sena ; Tete ; Batoka. Native name, "Pusi."

On the western shore of Lake Nyassa, on a rocky headland which ran out into the lake, we saw a number of Black Monkeys, quite distinct from any met with elsewhere. No specimens were obtained, as the boat was moving on quickly, and a heavy sea running at the time.

3. CYNOCEPHALUS BABOUIN (Desmarest).

Tete ; Sena ; Batoka ; Rovuma. In some parts a sacred animal, and preserved by the people. Native name, "Nyani," Manganja ; "Mabonque," Bororo.

## LEMURIDÆ.

## 4. GALAGO CRASSICAUDATUS (Geoffroy).

Mozambique ; Quilimane ; Luabo.

Frequents the mangrove-forests and wooded country outside. In captivity it eats flesh, vegetables, fruits, and insects ; in its native state it is fond of palm wine, robbing the pots used by the natives to collect it. This often leads to its capture when it drinks to excess.

During the day it remains quiet in some shaded tree-top. At night it is very active, leaping from frond to frond, or crossing from one cocoanut-palm to another.

Dr. Peters obtained specimens of this animal, not only on the sea-coast and maritime region to which I had imagined it was limited, but also from the interior. He has, after a careful investigation, identified it with the *Galago crassicaudatus* of Geoffroy. Between the skull of a specimen I obtained and that named *G. crassicaudatus* in the British Museum no difference is observable, although in the colour of the hair there is some variation. Yet I should consider them as one, and identical also with the specimen presented by Dr. Waghorn, now in the Gardens alive, which probably came originally from the same Portuguese gentleman who gave me my specimens.

## 5. GALAGO MAHOLI (Smith).

Kebrabassa ; Batoka ; Nyassa.

Common among the wooded hills of Kebrabassa. By day it rests in the bush. After sunset it becomes active, and on several occasions came about the camp-fires. Its powers of leaping are extraordinary ; in the dim light it more resembles a Bat in its movements, crossing from side to side, at single leaps, distances of 6 feet. Occurs singly or in pairs.

## CHIROPTERA.

## 6. EPOMOPHORUS CRYPTURUS, Peters.

Shupanga, S. lat. 18° 2'.

These animals appear about sunset, and continue flying about for a few hours. They were abundant at the time when the Great Fig-tree was covered with fruit ; this they carried off to the neighbouring *Bombax* trees, and ate at leisure. A much larger Bat, compared by the natives to *Pteropus edwardsii*, is said to inhabit the mountainous district of Gorongozo, south-west from Sena.

## 7. PHYLLORHINA GRACILIS, Peters.

Shupanga, in the house.

## 8. PHYLLORHINA CAFFRA, Peters.

Shupanga, in the house.

## 9. RHINOLOPHUS LOBATUS, Peters.

Shupanga, in the house.

10. *NYCTERIS FULIGINOSA*, Peters.

Shupanga, in the house.

11. *VESPERTILIO NANUS*, Peters.

Mozambique, in the house.

12. *NYCTICEJUS NIDICOLA*, sp. nov.

Fur brown; the base of the hairs blackish, beneath yellowish. Ears ovate, acute, with a well-developed rounded process at the front part of the outer or lower edge. Tongue linear lanceolate, acute, rather more than half the length of the ear. Face depressed, bristly. Wings elongate, thin, bald, rather hairy above and below, close to the body; forearm-bone nearly  $1\frac{1}{2}$  inch long; the thumb compressed, rather elongate, slender, of a single joint. Tail as long as the body. The interfemoral membrane very large, broad, with nearly regular, almost parallel, transverse muscular bands, which are hairy on the upper and lower surface. The spur elongate, strong, nearly as long as the foreleg and foot; the spur and the end of the membrane fringed with short, rather rigid hairs. The legs rather elongate; the lower part of the thigh slender; the shank slender, not quite half the length of the arm-bone; the toes moderate, slender, compressed, covered with short adpressed hairs.

Expanse of wings 10 inches, of forearm-bone 1.5 inch, of fore-leg 8 inches, of foot 3 inches, of spur  $9\frac{1}{2}$  lines.

Shupanga, near the Zambesi.

Four specimens were obtained; they had taken possession of the nests of Weaver-birds (*Euplectes*). Having accidentally found a pair in one of these hanging nests; others were soon discovered in similar positions near by.

## INSECTIVORA.

13. *CROCIDURA CANESCENS*, Peters.

Tette.

14. *MACROSCELIDES INTUFI*?

I believe this to be the species seen on the river Rovuma, in lat.  $11^{\circ}$  South; it lived in sandy soil, among bushes.

15. *PETRODROMUS TETRADACTYLUS*, Peters.

Cabaceira, Mozambique. Very common.

## CARNIVORA.

16. *MELLIVORA CAPENSIS*, F. Cuvier.

Near Sena; Manganja country.

When wounded, it makes for the tendo Achillis, which it cuts; it is considered in that way a dangerous animal.

17. *RHABDOGALE MUSTELINA*, Wagner.

Specimens were got at Mozambique; it is there very abundant on the sandy and gravel soils of Cabaceira; also on the Zambesi.



18. *LUTRA INUNGUIS*, Cuvier.

Native name, on the Lower Zambesi, "M'biti."

Common in all the rivers and lakes, from the Victoria Falls to the sea-coast.

19. *VIVERRA CIVETTA*, Cuvier.

Near Shupanga, on the Lower Zambesi. In bushy country between Sena and Tete.

20. *VIVERRA GENETTA*, Linnæus.

Very common, especially near the coast. Many variations in colour and marking are due to age.

21. *HERPESTES FASCIATUS*, Desmarest.

Quilimane; Shupanga; Sena.

Easily tamed. Very fond of eggs, which it breaks by throwing them backwards against a stone.

22. *HERPESTES ORNATUS*, Peters.

Tete. Only one specimen of this Mangouste was seen.

23. *HERPESTES PALUDINOSUS*, Cuvier.

Native name, "Moko."

Quilimane. Very easily domesticated. Eats flesh and fish, but not eggs.

✕ 24. *OTOCYON LALANDII*, Smith.

Zambesi, near confluence of Kafue, and north of Sena.

These animals hunt in packs. Although inferior in speed to the Antelope, they will run him down, and at last wear him out; even the Buffalo they are said sometimes to kill.

25. *HYÆNA CROCUTA*.

Native name, at Shupanga, "Tika;" by the Bechuanas called "Setloñkane."

One of the many scavengers of the country, abounding where game or dead bodies are found. It is a cowardly animal, and will never attack until the other runs off; yet it often bites men asleep. The white secretion deposited by it is commonly found on stones or in the field.

The Laughing Hyæna is more rare, and no specimen was killed.

26. *FELIS LEO*.

"Tao" of the Bechuanas; "Pondoro" of Tete; "Nkaramba" of the Manganja.

Frequents grass-plains and open forest-country. In parts where the doctrine of transmigration of souls forms part of the native belief it is very common, also where game is plentiful. It will only attack man when pressed by hunger, or when wounded, and is a cowardly animal.

*Lepus ... 1875*

27. *FELIS PARDUS*.

“Ngwe” of the Bechuanas; “Nyarugwe,” on the Lower Zambesi.

Occurs in plains and mountains. A more dangerous animal than the Lion.

28. *FELIS JUBATA*.

In the Makalolo country, but not common.

29. *FELIS SERVAL*.

Native name, in Lower Zambesi, “Njuzi.” Very widely spread in the plains, valleys, and hills of East Tropical Africa.

30. *FELIS CALIGATA*, Temminck.

Tete, Sena, and Manganja country. Native name, “Bonga.”

## GLIRES.

31. *SCIURUS MUTABILIS*, Peters.

Common in forests near the Murchison Rapids, River Shiré, and in the Zambesi valley, near Sena. Very frequent in “Mopane” forests.

32. *SCIURUS FLAVIVITTIS*, Peters.

Cabaceira; Mozambique: in mango-plantations. Very common.

33. *SCIURUS CEPAPI*, Smith.

Near Tete.

34. *AULACODUS SWINDERIANUS*, Temminck.

By the natives of the Lower Zambesi this is named “Senze.” It inhabits sand-islands and grassy plains near the mouth of the Zambesi. It is caught by burning the reeds and grass. Produces four young. Specimens of the fœtus are in the British Museum.

35. *MUS ALEXANDRINUS*, Geoffroy.

Near Tete.

36. *MUS (PELOMYS) FALLAX*, Peters.

Shupanga. The common water-rat of the country.

37. *HYSTRIX AFRICÆ-AUSTRALIS*, Peters.

Native name on the Lower Zambesi, “Nuñgo.”

The only example seen alive of this animal was at Zanzibar; it had been brought across from the mainland. All throughout the Zambesi countries the spines were constantly found, although no specimen of the animal was killed.

38. *LEPUS SAXATILIS*, F. Cuvier.

“Sena”; Shupanga; Murchison Rapids.

Nowhere very common, yet scattered over a wide area. Its habits are like the Hare; its haunts are rocky ground and underwood.

## EDENTATA.

39. *MANIS TEMMINCKII*, Smuts.

By the Portuguese called “Bicho vergonhoso.”

The scales of this animal are much valued by the natives, and worn as “fetish.” It occurs “near Sena.”

40. *ORYCTEROPUS CAPENSIS*?

Native name, “Simba.” Common near Shupanga; said also to be frequent at Mozambique.

No specimen was obtained; yet I have little doubt of its being the same animal as is found in the colony. It burrows very fast, and, for that reason, cannot be dug up.

## SOLIDUNGULA.

41. *EQUUS ZEBRA*.

Native name in Sechuana, “Pitse”; at Sena, “M’bizi”; among the Manganja, “M’bidzi.” Found at the foot of Moramballa hills, opposite Sena; hills south of Lake Nyassa; Kebrabassa, Batoka country. Not so common as Burchell’s Zebra.

42. *EQUUS BURCHELLII*.

Native name on Lower Zambesi, “Bidzi-kiti.” Inhabits the neighbourhood of Shupanga and Sena, and readily known from the other species by the yellowish colour between the stripes.

The Quagga is unknown on the Zambesi.

## PACHYDERMATA.

43. *ELEPHAS AFRICANUS*.

By Bechuanas named, “Ylo”; at Tete and Sena, “Dzo”; by the Manganja, “N’jovo” or “Njobvo.” On the Nyassa, ivory is named “dembo”; by the Bechuanas, “manaka a tlo,” or horns of the Elephant—those of Sena also naming the tusks “M’nyanga,” or horns. In different regions the Elephant varies in size. On the Zambesi the animal is smaller than it is further south, but the ivory is rather larger; that which comes to Zanzibar is still heavier. Of the ivory which comes to Quilimane, some is from mountainous and rocky country; this is heavier, in proportion to its apparent size, and harder than that from the flat, damp plains.

The Elephant goes commonly in herds; solitary animals are always dangerous, and will occasionally attack without provocation. The herds of males and females go separate, and are never known to mix with each other; the calves follow the cows. Where hunters with

guns have not penetrated, the Elephant is still found in large numbers: as many as 800 were seen by us at one time, nor did they move off as we approached: yet that day's experience was sufficient; they never again allowed us such a chance. The food of the Elephant consists of leaves and bark of trees, palm-fruits, both *Borassus* and *Hyphæne*, and all sweet fruits, as *Sideroxylon*, *Parinarium*, *Cordyle*, and *Sclerocarya*. On one occasion only have I known the Elephant eat grass.

Measurements of male Elephant killed on Lake Nyassa, 9th of September, 1861:—

	ft.	in.
Height at withers . . . . .	10	3
Circumference of fore foot . . . . .	5	1
From tip of trunk to crown of head . . . . .	9	0
From crown of head to insertion of tail . . . . .	12	0
Length of tail . . . . .	4	2
Horizontal diameter of ear . . . . .	3	0
Perpendicular diameter of ear . . . . .	5	9
Semicircumference of belly . . . . .	9	0
Semicircumference of chest . . . . .	7	10
Each tusk weighed about 30 lb.		

Measurements of young cow with foetus *in utero* (on the chest there still remained a good deal of hair), shot in Elephant Marsh, River Shiré:—

	ft.	in.
Height at withers . . . . .	6	9
Circumference of fore foot . . . . .	3	5
Perpendicular diameter of external ear . . . . .	4	4½
The tusks weighed 8 lbs each.		

44. RHINOCEROS AFRICANUS.

In Sechuana named "Borile," or, more fully, "Chukuri e borile," "the sour Rhinoceros"; at Sena, "Phuete;" at Tete, "Shi-pembere." Seen on the Zambesi at Sena, in the Batoka country, and in the forest near the Kafue; on the Shiré, at Moramballa.

Its food consists of leaves and twigs of trees. It frequents forest and bush country, avoiding grass plains. Without questioning the justice of separating the Keitloa of Smith from the common Black Rhinoceros, I am not prepared to say which species it was we met with.

The White Rhinoceros is unknown on the Zambesi. The food of the Rhinoceros consists of twigs and leaves of trees.

45. HIPPOPOTAMUS AMPHIBIUS.

In Sechuana named "Kubu"; at Tete and Sena, "Mvu"; at Quilimane and amongst the Achawa, "Tomondo." Common to all lakes and rivers. On the coast it goes to sea, and plays among the surf. On Nyassa a full-grown male measured 14 feet from snout to tip of tail, and stood 3 feet 6 inches at the withers. On the Zam-

besi a tusk weighing 8 lbs. is considered good, and they very seldom equal 12 lbs.; the females bring forth one fœtus at a time.

In a school of Hippopotami seen in the Zambesi, above the Kafue, one was white—quite an albino. In a school further down we noticed several piebald individuals; and, still further off, the Hippopotami had white feet only.

Before fire-arms the White Rhinoceros is the first animal to disappear; but the Hippopotamus also must soon give way.

#### 46. PHACOCÆRUS AFRICANUS.

Native name, "Jiri" or "Njiri" at Tete; in Sechuana, "Kolobe;" Sena and Tete; Batoka country.

#### 47. POTAMOCHÆRUS AFRICANUS.

Zambesi delta. Native name, "Ngulve."

The name of "N'kumba," given to a pig, means an animal that burrows or digs.

#### 48. HYRAX ARBOREUS, Smith.

Common in rocky hill-sides; Manganja hills; Kebrabassa.

They live in colonies; the natives catch them in spring-traps: their flesh is good.

#### 49. HYRAX, sp.?

Alongside of the Murchison Rapids a *Hyrax* was killed by one of the natives; it differed from the common Cape species, being less in size and of a lighter colour. It was one of a colony living among rocks. The specimen was lost, and I cannot identify it as any described species.

### RUMINANTIA.

#### 50. CAMELOPARDALIS GIRAFFA.

Sechuana name, "Tutlwa."

Quite unknown on the Zambesi; it was never seen by any of our party, unless crossing from Sesheke to Linyanti, in the Makololo country.

#### 51. ÆPYCEROS MELAMPUS (Licht.).

"Pallah" of the Bechuanas.

Frequent in hilly ground or in plains at the foot of hills, to which it always runs when disturbed or wounded. Absent from damp grassy plains. Observed in the hills which form the Murchison Rapids of the Shiré; in the plains above Victoria Falls, near the Batoka Hills. Abundant on the rocky island of "Imparira," at junction of "Chobe" with Zambesi; commonly in herds of fifteen to thirty.

#### 52. CEPHALOPHUS OCULARIS, Peters.

Native name in Sena, "Nyassa." By Bechuanas the Duyker Antelopes are named "Puti."



Two specimens killed above Lupata. Once started, the members of this group of Antelopes have the habit of never stopping until out of sight.

53. *NESOTRAGUS LIVINGSTONIANUS*, n. sp.

Shupanga and Lupata, where it is named "Rumsa" or "Lumdsa."

This small Antelope is very nearly allied to *N. moschatus* of the island of Zanzibar, under which name it is probably mentioned in Dr. Peters's 'Mammalia.' Yet it seems to me different from that of Zanzibar, of which I have seen three recently killed specimens in that island. The size of the two animals is nearly the same; the colour of that on the Zambesi lighter, and the hair softer, the ears larger and broader, horns more closely ringed, and nostrils more narrowed.

The habits of this Antelope resemble those of the Zanzibar animal; it frequents dense underwood jungle; lives in pairs. On being started, it runs quickly, not unlike a hare, turning quickly, and concealing itself in some tuft of grass or small bush.

It seems to me that between the specimen in the British Museum from Zanzibar and the head from the Zambesi there are specific differences, sufficient to justify the latter being at present regarded as a distinct species. Better specimens of both are much needed.

54. *OREOTRAGUS SALTATOR*.

The "Klippspringer" of Cape colonists.

Found singly or in pairs in rocky ground and among mountains; seen in Kebrabassa, and on the hills at the Murchison Rapids, River Shiré. Only two specimens were killed, both females.

55. *HELEOTRAGUS ARUNDINACEUS*.

Named "N'Sengo" at Sena and Tete. Very widely distributed on open grass-plains, both at the coast and in the interior.

Zambesi delta; Shupanga; Sena; Batoka.

Commonly found feeding in small herds; in the heat of the day it rests in long grass, and may be approached within fifty yards before starting. It seldom runs far without stopping to look round. Before again making off, it gives a shrill whistle, as it does often when first started.

Should the female have young, unable to run far, and danger near, she places her foot on the shoulder and presses it to the ground; after which it never moves until almost trodden upon, and is expected to remain in the same spot until the return of the mother.

The curvature and amount of divergence of the horns varies in this Antelope more than in some other species.

56. *HELEOTRAGUS VARDONII*.

*Antelope vardonii*, Livingstone, Missionary Travels.

Native name, "Poku."

This is one of the three water-antelopes common to the marshes

about the Chobe and Zambesi, in the centre of the continent, but elsewhere as yet unknown. With the *H. lechè* it often mixes, the habits of the two being very similar, the "Poku" being less aquatic and found more often on dry ground. It is known by its smaller size, its more erect carriage, and plumpness of neck. The horns are less turned backwards, and partake more of the aspect of the "Reit-bock." Our specimen of the horns was lost while travelling to the coast.

#### 57. HELEOTRAGUS LECHÈ.

*Adenota lechè*, Gray.

This Antelope has not been found near either coast in the line of the Zambesi; it is limited to the central valley above the Victoria Falls, to the marsh-banks of that river and its tributaries, especially the Chobe. It is a water-antelope, frequenting damp marshy places, and taking to impassable swamps, among reeds and papyrus. It goes in considerable herds, accompanied by several males, mingling often with the "Poku," another Antelope peculiar to that region. In the distance the *H. lechè* may be known by the peculiar way in which it allows its horns to recline back, almost touching the withers.

This Antelope was found by Mr. Petherick in the marshy region on the Nile, near the Bahr-el-gazal.

#### 58. HELEOTRAGUS ELLIPSIPRYMNUS (Ogilby),

"Water-buck"; "Tumoha" of the Bechuanas; "Nyakobswe" of the Lower Zambesi.

Very common on the sea-coast at the mouth of the Zambesi and Rovuma, and in all damp plains crossed by rivers or near lakes; but absent from mountains. When wounded, it makes for the water or for the dense shade of reeds. Goes in herds of about five to fifteen females followed by one or two males. In the rutting-season severe fights take place between rival males. Near the sea-coast the flesh is well-flavoured and juicy, in the interior dry and worthless. Like all water-antelopes, the Waterbuck is very tenacious of life. Shot through the lungs, they will make off for some distance; shot in the belly, they are seldom seen again; and with a Jacob's shell burst behind the heart, they have been known to run twenty paces.

The three genera *Heleotragus*, *Adenota*, and *Kobus* are most intimately related, forming together a single tolerably well-defined and natural genus, the subdivision of which is quite artificial and very inconvenient.

#### 59. ÆGOCEROS NIGER (Harris).

Named at Sena "Para-para."

One was found killed by lions on the banks of the Zambesi, at the head of its delta; they are found inland from Shupanga, near Moramballa, on Lake Nyassa, on the Batoka Hills, and in the plains between Linyanti and Sesheke. This is the "Tahetse" of the Bechuanas; the "Qualata e enchu" of the Makololo, who distinguish two species—the "Qualata e tsetla," or yellow Qualata, and the other, which means the black one. One shot on the Batoka Hills was the

“Qualata e enchu,” yet did not seem at all like the *Ægoceros leucophæus*, the Bastard Gemsbock of Cape colonists. Its colour was quite tawny, marked like the Sable Antelope on the face; but in the whole herd there was not a single one with the dark-coloured hair. I suspect this species will be found to combine two distinct animals; else this Antelope is most variable in its colour.

60. TRAGELAPHUS SYLVATICUS (Sparrm.).

“M’pabala” of the Bechuanas; “M’bawala” of the regions on the Lower Zambesi and Shiré; Quilimane; Luabo; Tete; Batoka Valley.

Occurs either singly, in pairs, or accompanied by its young; frequents damp plains and thick jungle near water; when disturbed, it makes off to the thickest cover or to some marshy place. In the mud-regions of the Zambesi delta its hoofs become lengthened to enable it easily to pass in soft wet places. In colour and spotting this Antelope varies much.

61. TRAGELAPHUS SPEKII, Sclater, P. Z. S. 1864, p. 103, Pl. XII.

Native name, “Nakong.” Among papyrus and rushes on the Chobe. A skin, with horns and hoofs attached, was given me when in that part, although the Antelope was not seen alive.

62. STREPSICEROS KUDU, Gray.

Sechuana name, “Tolo;” Lower Zambesi, “Goma.”

A hill Antelope, never found in the plains common to all mountain-ranges; Lupata; Tete; Kebrabassa; Nyassa; Batoka.

63. OREAS CANNA, Gray.

“Impofu” of the Bechuanas; “Nyakaso” of Sena; “Tuka” of Shupanga; “Shefu” or “Jefu” of the Manganja.

South of the Zambesi it is uniform in colour, or, at least, not distinctly banded; the colour varies considerably. It is not uncommon in the country behind Shupanga and opposite Mazzaro. Feeds on branches and leaves of shrubs. A much finer animal in its wild state than in captivity in England.

64. OREAS LIVINGSTONII, Sclater.

This species differs, so far as is known, in nothing but the banding on the body. It has not yet been found anywhere south of the Zambesi. No specimen of Eland was seen in the Manganja country, although the natives had the horns of one. On the plains at the foot of the hills, near the junction of the Kafue, but east of that river, one showing the striped markings very distinctly was killed by us; the same variety was noticed by Capt. Speke in the country traversed by him.

As a species this can hardly be regarded as distinct from the former until some better difference has been pointed out: faint marking is usual in the Elands of the south, and in the young this is

always well seen. The habits of both are identical, and their horns not to be distinguished.

65. *BOSELAPHUS LICHTENSTEINII*, Peters.

Native name on Zambesi, "Godoñko."

Very common during the dry season in the forests of Shupanga and Inhamunha, in small herds. Near the south end of the Nyassa the same species was shot. Like the South-African species, it is remarkably swift, notwithstanding its heavy, awkward paces.

66. *CATOBLEPAS GORGON*, H. Smith.

This is the "Kokōng" of the Bechuanas; the "Nyumbo" of the Manganja and Zambesi people.

Very abundant and in considerable herds in the Batoka country, also near Lake Shirwa and at Shupanga on the Zambesi. The tail of this animal is supposed to possess magic powers, and is taken by expeditions engaged in war. The flesh is very worthless, the fat hard and unpleasant.

The Brindled Gnu often mixes with herds of other animals, such as the Zebra.

67. *BOS CAFFER*.

Sechuana, "Nari"; Lower Zambesi, "Nyati" or "Njati."

A water-loving animal, met with everywhere in the Zambesi region, unless exterminated by the natives. One of the animals on which the "Tsetse" depends, but does not kill. When wounded, the Buffalo is cunning and dangerous.

*Domestic Animals.*

Before East Africa was discovered by Vasco da Gama, and trade with Europe established, the natives had but few domestic animals, viz. the Sheep, Goat, Ox, and Dog. The Portuguese have introduced the Cat, the Pig, the Horse, and Ass.

Of Dogs there are two sorts, one the common pariah of native villages: this among the Manganja is sold and eaten; it is called by them "Garu." A smaller sort is used by a tribe, the Achers, in hunting the Elephant: while a number of these keep the animal engaged, the hunter runs in, and with a long-bladed axe severs one of the main tendons, thereby rendering him powerless.

The Sheep are the fat-tailed sort, with short hair instead of wool.

Of Goats there are two well-marked varieties—the common one having short hair, and that of the higher mountains, much more rare, with long hair hanging down almost to the ground.

The Oxen are long-horned, those of the lakes being remarkable in this respect.

Another small breed of cattle is (or rather was, for now it is rare) found in the Batoka country.



2. DESCRIPTION OF THE EGG OF *PARRA GALLINACEA*.

BY JOHN GOULD, F.R.S. &amp;c.

The ground-colour of the egg of this species is of a dark shining raw-sienna tint, over which are traced in various directions a series of broad and fine hair-like contorted lines of brownish black, which, by occasionally uniting laterally and crossing each other, form here and there large blotches. Although these markings are of the same character on each egg, they are somewhat differently distributed: thus, on one of the two I possess, they are more numerous at the larger end, and absent at the smaller; while, on the other, they are more abundant at the smaller, and less so at the larger extremity. The eggs are one inch and an eighth in length by seven eighths of an inch in breadth. They are, moreover, rendered remarkably conspicuous by the singularly pointed form of the smaller end, and by their small size as compared with that of the bird, but above all by the form and disposition of the markings, which are as if traced by the hand of a person who had amused himself by attempting to cover the surface with fantastic streaks, blotches, and contorted curves from end to end.

The two examples above described were most kindly sent to me from Eastern Australia, by Mr. Hills, through the instrumentality of his relative, Sir Daniel Cooper, Bart.

3. CHARACTERS OF NEW SPECIES OF CRUSTACEANS DISCOVERED  
BY J. K. LORD ON THE COAST OF VANCOUVER ISLAND.  
BY C. SPENCE BATE, F.R.S.

[The following new species of Crustaceans, collected on the east side of Vancouver Island, were kindly named, described, and figured for me by Mr. Spence Bate. Some of them were dredged in from 8 to 10 fathoms of water; the rest were collected between tide-marks.

Mr. Spence Bate says, in speaking of the collection generally, "The extremely opposite and varied localities in which many of the species here represented have hitherto been found, suggest the idea that Vancouver Island corresponds with the extreme limit between a northern and a tropical fauna." "It is only in this way I can account for finding the representatives of tropical species, with others that are found only (on the eastern coast of Asia) in the Arctic and, perhaps, North Atlantic Oceans." That he is quite correct in this assumption I think there can be little, if any, doubt; for not only does it apply to the Crustaceans, but with equal force to the Molluscous groups. Several new species of shells, collected at the same time and in the same localities as the Crustaceans, which were named and described by Dr. Baird, with appended notes by myself, and published in the Society's 'Proceedings' of last year, are identical in some cases, in others closely allied to known species from Japan, Australia, and the north shores of our own island.

The tidal irregularities of this coast are perfectly inexplicable. In



May, June, and July, during the twenty-four hours there is but one high and one low water. At the change and full of the moon, high tide happens near midnight, and varies but little as to time during the three months. In August, September, and October there are two high and two low tides in the twenty-four hours. Then in the winter months, November, December, and January, the regular twelve-hour tides recur; but high water is at twelve in the day, instead of twelve at night. The spring tides range from 10 to 12 feet, the neaps from 5 to 8.

The temperature of the sea taken during the summer months near the surface ranges from 52° to 56° F. The sea-water seldom, I may say never, looks clear, but always presents a turbid muddy appearance, as if a large quantity of sand was mixed with it. This may in some measure be accounted for by assuming that strong undercurrents flow from north to south, and, sweeping past the island and being (from their low specific gravity) close to the bottom, stir up the sand and mud. The sea-bottom in and adjacent to the numerous bays, harbours, and long canals which, like the fiords of Norway and Sweden, everywhere intersect the mainland and island coasts, varies in accordance with the character of the bounding rocks: where trap, soft clay-slates, or felspathic rocks form the coast-line, a thick blue clay is the usual bottom; where grits and sandstones, there it is sandy.

Little, if indeed anything, is as yet known of the deep-sea productions from the west side of the island, which will afford a rich harvest to future explorers.—J. K. LORD.]

*PUGETTIA LORDII*, n. s.

Carapace quadrate behind the orbits; the anterior portion abruptly narrowing and produced into a double rostrum, the horns of which divaricate. The anterior extremity of the orbital margin is produced to a sharp point—that is, elevated slightly above the beak; the posterior extremity is defined by a distinct fissure. The anterior hepatic region is produced by a tooth immediately posterior to the postorbital fossa, laterally extended to an obtuse tooth or point, and posteriorly separated from the branchial regions by a decided fossa or lateral constriction. The branchial region is laterally produced to a strong anteriorly-curved point. The dorsal surface is tolerably smooth, exhibiting but faintly the marking of the internal viscera. The eyes are small, and reach but little beyond the orbital margin. The external antennæ have the first joint fused with the carapace, the second and third compressed and arcuate, and terminate in a smooth flagellum. The first pair of pereiopoda are moderately long, having the meros triangulate, the upper angle forming a prominent carina that extends along, but terminates abruptly a little short of, both extremities of the joint; the carpus is tricarinated; the propodos is laterally compressed, and forms about half the length of the limb, and is about one-third its breadth. The dactylos is slightly curved and slightly serrated on the inner margin, and antagonizes at the extremity with the produced propodos. The second pair

of pereopoda are nearly as long as the first, but much more slender, having the meros and propodos subcarinated. The three posterior pairs are shorter. The pleon is small and narrow, the second and third segments being the broadest, while the seventh is abruptly narrower than the sixth, and forms a triangular plate. The female differs from the male in being more protuberant over the stomachal region, and consequently the rostrum is more depressed; anteriorly, there is less development of the lateral branchial teeth, and there is a relatively greater distance between the fifth pair of pereopoda. The pleon is almost circular, and covers the entire surface of the ventral region.

The colour of the animal is of a reddish brown, which increases in brightness as it approaches towards the extremity of the chelæ. In one or two young females the carapace was smooth and glabrous.

Found in tolerable abundance in Esquimalt and Victoria Harbours, and, indeed, in all the sheltered inlets along the mainland coasts from the mouth of the Fraser to San Francisco. Dredged in about eight fathoms of water, but easily obtained in pools at extremely low tides. Its favourite haunt is under a large flat stone, or hid under the seaweed that fringes the margin of a pool. The specimen from which the drawing was made was taken in Esquimalt Harbour.

#### OREGONIA LONGIMANA, n. s.

Carapace coarsely granulated or minutely tuberculated, free from hairs, except upon the rostrum, which is slender and twice the length of the interorbital space. Pleon, in the male, narrow, concave upon each side, corresponding with the fourth, fifth, and sixth segments. Telson rather broader than the preceding segment, and emarginate at the terminal extremity. The first pair of pereopoda are very long, being twice the length of the carapace, and much longer than in either of the species described by Dana and Stimpson; the meros reaches quite to the extremity of the rostrum, and is furnished with two or more longitudinal rows of small granulated tubercles; the propodos is rather longer than the meros, and its breadth is equal to about one-third of its length; the dactylos is about one-third the length of the propodos, slightly curved and minutely serrated on the inner margin, which impinges throughout its entire length upon the produced extremity of the propodos. The three succeeding pairs of pereopoda are imperfect in the only specimen procured; but the last pair are long, cylindrical, slender, and terminated in a powerful dactylos.

This specimen was obtained in Esquimalt Harbour, and in its habits and general distribution it is very similar to the preceding.

#### PLATYCARCINUS RECURVIDENS, n. s.

This very pretty species may easily be distinguished by the sharp points of the inner lateral teeth, granulated or minutely baccated along the margin, and having the apex recurved. The intraorbital margin is three-lobed and granulated, the central lobe being the smallest. The dorsal surface of the carapace is granulated on the

prominent lobes in the larger specimens, but almost smooth in the young. The first pair of pereopoda have also lines of granulations along the outer surface of the propodos and carpus.

Dana has merged this genus into that of *Cancer*; but the greater length of the animal in relation to its breadth is a very convenient generic diagnosis, and one that appears to correspond with Milne-Edwards's description relative to the more longitudinal position of the two pairs of antennæ.

The specimens were obtained in Esquimalt Harbour. It frequents pools between tide-marks; but Mr. Lord thinks it is common everywhere along the Oregon coast.

#### CHLORODIUS IMBRICATUS, n. s.

Carapace having the posterior portion smooth, the anterior being rough with flattened prominences that form an irregularly imbricated surface. Anterior margin slightly baccated. Antero-lateral margin five-toothed, the central tooth being the largest, the posterior the most prominent. A small secondary tooth stands upon the anterior surface of the fourth and fifth teeth. The first pair of pereopoda are short and robust; they have the carpus deeply corrugated upon the external surface, so also the propodos; the dactylos is ribbed upon the upper surface; a slight rib is also present upon the carpus of each of the four succeeding pairs of pereopoda.

Only a single specimen of this pretty little species was obtained. It was dredged in about eight fathoms of water in Esquimalt Harbour.

#### CRYPTOLITHODES TYPICUS.

*Cryptolithodes typicus*, Brandt, Bull. de l'Acad. de St. Pétersbourg, 1849, vii. 175; Stimpson, Crust. et Echin. of Pacific North America, Journal of the Boston Soc. of Nat. Hist. vol. vi. p. 472, pl. 20.

A specimen of this species, which was first described by Brandt, and afterwards more fully, as well as figured, by Stimpson, was taken in Rosario Strait, Vancouver Island, as well as in Upper California.

The male, which has not hitherto been described, differs from the female in being less produced posteriorly. The posterior margin, instead of being projected in an arch inversely corresponding with that of the anterior margin, traverses a line that is nearly direct from side to side, slightly posterior to the points of the broadest diameter in the carapace. The pleon is triangular, and smaller and narrower than in the female, having the lateral margins more straight and symmetrical.

The only male specimen in the collection is smaller than the female, and the surface generally more tuberculated. The right propodos of the first pair of pereopoda is larger than the left, and is so well developed as scarcely to be capable of being folded within the limits of the carapace. The length of the male animal, from the extremity of the rostrum to the centre of the posterior margin of the carapace, is about  $\frac{3}{4}$ ths of an inch; its breadth, from the point of one lateral extremity to the other, is about  $1\frac{1}{4}$  inch.



The size of the largest female in the collection is in length about  $1\frac{1}{4}$  inch, and breadth about 2 inches.

*CRYPTOLITHODES ALTA-FISSURA*, n. s.

Female.

This species may readily be detected from the two previously known by the smoothness of the carapace, propodi, and pleon, and more distinctly by the deep orbital notch on each side of the rostrum.

The carapace is nearly as broad again as long, and produced considerably posteriorly to the cardiac elevation—a feature that appears to belong to the female. The rostrum is broad, flat, and rectangular. The antero-lateral margins are produced so far anteriorly as to be nearly in a line with the extremity of the rostrum; a deep notch, in which the eyes are situated, exists on each side of the rostrum. The anterior margin is slightly marked with distant small points. The posterior margin is quite smooth and even. The dorsal surface is quite smooth, and pencilled in light red upon a yellowish ground, the red pencilling being fine and delicate, following the contour of the margin and surface of the carapace.

The pleon is subsymmetrical and very smooth, and planted considerably within the posterior margin of the carapace. The second segment (first visible) has the marginal plates fused with the central. The sixth segment is without lateral plates; and the telson is situated beneath, and anterior to, the posterior extremity of the sixth segment.

The eyes are small, and placed upon peduncles that gradually taper from the base to the extremity. The first pair of antennæ are short, and developed upon the type of those of the *Brachyura*; but the first joint is reduced to a size that is only about twice the diameter of the second. The second pair of antennæ are but little longer than the first, and are furnished with a broad round scale at the third joint, and a terminal flagellum that is about the length of the fifth joint of the peduncle. The squamiform appendage is circular and disk-like; the inner margin is straight or somewhat excavated.

The second pair of gnathopoda have the third joint much broader than the fourth (the secondary appendage reaches not to the extremity of the third), and have the terminal joints small and rudimentary. The first pair of perciopoda are subequal in the female, the propodos upon the right side being somewhat larger than that on the left; the surface is smooth and even, and the dactylos is furnished with a prominent carina that terminates abruptly near the basal articulation, and loses itself gradually towards the apex. The fifth pair of perciopoda are completely hid from view; the three basal joints are short; the two terminal ones subequally long, and furnished with a copious brush of strong cilia. These appendages are folded together and enclosed within the branchial chambers, where they, no doubt, fulfil the office of the flabella of the highest forms of Crustacea—affording an interesting illustration of an organ being converted, by the force of circumstances, from its original purpose to the fulfilment of another, for which it was apparently most unsuited.

PETALOCERUS BICORNIS, n. s.

Carapace triangular, anteriorly produced into two horizontal horn-like processes; tuberculated with nodulated prominences all over the surface, but furnished with a series of large tubercles corresponding in line with the external margin of the carapace; the anterolateral margin constricted between the branchial and hepatic regions, furnished posteriorly to the orbit with two strong, blunt processes, and, posteriorly to the central constriction, armed laterally with two distant narrow processes, and posteriorly with six closely situated large, round tubercles.

The pleon is nearly symmetrical, being rather larger on the left than the right side. Each segment is defined by a marginal prominence; that upon the left side is continued from near the middle to a process that terminates in a point or tooth at the side, but that on the right becomes confluent with a posterior ridge, and forms an irregular circle, the centre of which is deeply depressed.

The eyes are small, of a green colour, and surmounted on denticulated peduncles. The first pair of antennæ consist of three equal-lengthed joints (of which the first is the more robust), together with a short, stout, pilose flagellum and a slender secondary appendage. The second pair of antennæ have a compound scale, consisting of two large and two short compressed processes, and the third joint is furnished with two or three sharp, strong processes.

The first pair of pereopoda are chelate and strong, echinated with blunt-pointed spines, and terminate in fingers that are flattened at the extremity, and furnished upon the outer surface with numerous tufts of hair, that spring from the summits of the numerous tubercles that are found there. The second, third, and fourth pairs of pereopoda are more slender than the first, resemble one another very considerably, and are furnished with short, sharp, and slightly curved dactyli. The fifth pair of pereopoda are rudimentary appendages; they consist of but five joints, the last of which terminates in a blunt extremity that is furnished with a considerable brush of hair, and is probably used for the purpose of cleansing the branchial appendages.

The pleopoda are present in the female, with the exception of the first pair (which are small) only upon the left side of the pleon, as exemplified in our specimen.

This species differs from White's *P. bellianus* in having a horizontal bifurcate rostrum to the carapace, being more distinctly tuberculated, and in the pereopoda being more strongly spinated.

This handsome species is of a yellow colour, picked out with purple between the tubercles.

It was dredged in Esquimalt Harbour, in ten fathoms of water.

HIPPOLYTE ESQUIMALTIANA, n. s.

Rostrum as long as the carapace, armed with four teeth at the base, the posterior being just behind the orbits, and the anterior being near the centre of the rostrum, the anterior half of the rostrum being straight and smooth. The inferior margin is excavate at the



base, and furnished with seven small teeth, the four posterior being near together and posterior to the centre of the rostrum, the three others being further apart, the most anterior being subapical.

The third segment of the pleon is dorsally produced posteriorly to a point. The eyes are small; the superior antennæ have the primary ramus of the flagellum tolerably robust, and reaching to about two-thirds the length of the rostrum, the secondary slender and longer than the primary. The inferior antennæ have the scale reaching to about three-fourths of the length of the rostrum, rounded at the apex, subapically furnished with a small tooth upon the external margin; the flagellum (wanting).

First pair of pereopoda short, robust, chelate; second pair long, slender, and chelate; the posterior terminating in a robust dactylos.

Taken in Esquimalt Harbour.

#### MCERA FUSCA, n. s.

The body is long and slender; the superior antennæ are about half the length of the animal, the peduncle being scarcely longer than the flagellum, the secondary appendage being half the length of the primary, the second joint of the peduncle being about the same length as the first. Second pair of gnathopoda having the propodos large; palm without teeth, and defined by a small pointed process. Posterior pair of pereopoda having the posterior margin of the base smooth.

In its general appearance this species bears a near affinity to *Mcera grossimana*, as well as to *M. tenella*, from the Feejee Islands, the only appreciable distinctions being in the shorter length of the second joint of the antennæ, the absence of teeth from the palm of the hand in the second pair of gnathopoda, and in the even margin of the last (the only remaining) pair of pereopoda, and perhaps also in the shortness of the peduncle of the ultimate pair of pleopoda.

Only one specimen of this species is in the collection; and that was taken from a sponge dredged in about ten fathoms of water in Esquimalt Harbour. It is of a brownish colour.

#### JCERA WAKISHIANA, n. s.

Anterior margin of the cephalon nearly straight; pereion having the sides subparallel, the greatest width being at the sixth segment. Pleon having a double excavation on the posterior margin, the central point not extending beyond the extremity of the sides. Superior antennæ reaching to the extremity of the fourth segment of the inferior. Inferior antennæ nearly two-thirds the length of the animal. Posterior pair of pleopoda as long as the posterior margin of the pleon, terminating in two styliform rami, each of which is tipped with a few short hairs.

This species was taken from a sponge dredged in about eight fathoms of water in Esquimalt Harbour.

The specific name is derived from the circumstance of the animal having been found on the territory of the tribe of Wakish Indians.

## TANAIS LORICATUS, n. s.

The only specimen in the collection is imperfect. The first segment of the pereion appears to be imperfectly fused with the cephalon. Inferior antennæ scarcely half the length of the superior. First pair of gnathopoda having the propodos ovate; dactylos short and tumid, shorter and less pointed than the digital process of the propodos. Pereiopoda having the first three joints short and broad, being affixed to the side of the pereion like plates of mail (hence the specific name); they terminate in short pointed dactyli, and have the propodi armed with two lateral rows of strong, black, pointed teeth.

This species was taken from the hollow of a sponge dredged in Esquimalt Harbour, at the depth of about ten fathoms.

## IONE CORNUTA, n. s., Bate.

The male differs from the description of the European species chiefly in having the caudal extremity terminating obtusely, and in having shorter antennæ.

The female has the antero-lateral hornlike process of the cephalon curved posteriorly. The pereion is not quite equilaterally developed. The coxæ of the four anterior pairs of pereiopoda are round, and all attached to the antero-lateral margin of the segments of the pereion. The coxæ of the three posterior are the larger, and produced posteriorly to a point. The pleopoda are long, and fringed with arborescent branchiæ.

This is the only species known, besides that taken by Colonel Montagu on the southern coast of England.

Length, male  $\frac{1}{4}$ , female  $\frac{3}{4}$  of an inch.

Taken attached to the branchia of *Callianassa longimana*.

#### 4. DESCRIPTIONS OF NEW SPECIES OF LAND SHELLS FROM THE ISLANDS OF THE CENTRAL PACIFIC. BY W. HARPER PEASE, ESQ., OF HONOLULU. (COMMUNICATED BY DR. P. P. CARPENTER.)

[Mr. Pease having sent to me specimens of most of those land shells of the Central Pacific Islands which he regards as new, they have been carefully compared with the species of Pfeiffer, Reeve, Gould, and other authors in the Cumingian Collection. Those which Mr. Cuming regards as new are here described: a list of the remainder, with the synonyms as determined by Messrs. Cuming and H. Adams, is given for the sake of the many naturalists in this and other countries who have received them under Mr. Pease's MS. names. It must be remembered that Mr. Pease may have reasons for regarding them as distinct, which do not appear on the face of the specimens. Of the shells placed at my disposal by Mr. Pease, the first has been presented to the Cumingian Collection, the second to that of the Smithsonian Institution.—P. P. C.]

1. *HELIX OBCONICA*, Pse.

*H. t. depresso-conoidali, orbiculuri, tenui, subpellucida, nitidula, cornea, anguste umbilicata, sub lente tenuissime et dense oblique striata; subtus regulariter convexa; anfr. vi., planiusculis, leviter marginatis, ultimo ad peripheriam acute carinato; apertura depressae semilunari, superne unguata; labro acuto, juxta umbilicum vix reflexo.*

Diam. 7, alt.  $4\frac{1}{2}$  mill.

2. *HELIX NORMALIS*, Pse.

*H. t. subconoidea, subtus convexa, imperforata, tenui, fragili, nitidula, rufa vel pallide cornea; anfr. v.-vi., rotundato-convexis, vix oblique dense et confertim striolatis, marginatis, ultimo carinato, regione umbiliculi impressa; labro tenui, acuto, supra axim reflexo.*

Diam. 4, alt. 3 mill.

3. *HELIX SIMILLIMA*, Pse.

*H. t. orbiculari, tenui, fragili, subpellucida, glabra, nitida, levigata, supra planulata, vix elevata, subtus plano-convexa, imperforata, in foveam centrulem convexa, ad peripheriam late rotundata; anfr. iv., sutura distincta; apertura lata, lunari.*

Diam. 9, alt. 4 mill.

4. *HELIX FABREFACTA*\*, Pse.

*H. t. lenticulari, solidiore, late et profunde umbilicata, acetabuliformi, albicante, cretacea, sordida, inæqualiter et irregulariter radiatim fusco-castaneo strigata vel maculata; apice elevato; spira concava; anfr. vii., juxta margines depressis seu sulcatis, ultimo acute carinato, deinde planulato, ad umbilicum acute carinato; apertura rhomboidea; labro simplici, acuto.*

5. *HELIX FICTA*, Pse.

*H. t. lenticulari, depressa, solidiuscula, late et profunde umbilicata, albicante, subcretacea, sordida, fusco-castaneo radiatim strigata vel tessellata; anfr. viii.; spira vix elevata, plano-convexa, supra depressa; anfr. exterioribus plerumque prope margines sulcatis; anfr. ultimo ad peripheriam acute carinato, deinde planulato, circa umbilicum acute carinato; apertura rhomboidea, lamellu unica volvente instructa; labro simplici, acuto.*

Diam. 7, alt.  $2\frac{1}{2}$  mill.

6. *HELIX SCULPTILIS*, Pse.

*H. t. conoidali, solidiuscula, flavicante, umbilicata; spira obtusa, depressa, vix oblique confertim rugoso-costulata; anfr. vii., medio excavatis, ultimo ad peripheriam acute carinato; basi plano-convexa, radiatim conferte tenuissime costulata; umbilico cavernoso,*

[\* This species and the next appear to me identical; but Mr. Cuming's better judgment confirms that of the author.—P. P. C.]

*ad januam constricto; margine acuto, una cum labio continuo; apertura subrhomboidea; fauce lamellis duabus volventibus instructa; labro simplici, acuto.*

Diam. 6, alt. 3 mill.

Hab. Ins. Mangier.

7. *HELIX RETUNSA*, Pse.

*H. t. conica; spira obtusa, depressa, retunsa, rotundata; supra fusco et albido tessellata, subtus flammulis fuscis flexuosis radiata; anfr. vii., rotundato-convexis, oblique radiatim costulatis, costellis subdistantibus flexuosis, concentricè striatis; anfr. ultimo ad peripheriam rotundato, subtus radiatim striato et striis elevatis concentricis notato; apertura subrhomboidea; umbilico cavernoso, ad januam constricto; margine acuto; fauce lamellis duabus intus volventibus, una ad columellam, una ad anfr. penultimum, instructa.*

Diam. 4, alt. 3 mill.

8. *HELIX DEPRESSIFORMIS*, Pse.

*H. t. discoidea, planorboidea, supra planulata, subtus convexa, tenui, subpellucida, parum nitidula, fusco-cornea, late umbilicata, oblique confertim rugoso-striata; spira planulata, interdum parum elevata; anfr. iii. et dimidio, vix marginatis; ultimo acute carinato, ad marginem compresso, ad umbilicum rotundatim carinato.*

Diam. 7, alt. 2 mill.

9. *HELIX PROSTRATA*, Pse.

*H. t. tenui, depressa, profunde umbilicata, viridescenti-cornea, striis confertis subtilissimis decussata; anfr. iv., planis, celeriter accrescentibus; ultimo latiore, acute angulato, supra prope marginem sulcato, antice dilatato, subtus convexo; apice depresso; apertura late rotundato-lunari; perist. simplici, acuto.*

Diam. 6, alt.  $2\frac{1}{4}$  mill.

10. *BULIMUS TURGIDUS*, Pse.

*B. t. globoso-ovata, tenuissima, pellucida, nitida, imperforata, interdum obsolete transversim crebri-striata; anfr. iv., convexis, ultimo turgido, ventricoso, trientes duos longitudinis testæ superante; spira brevi, apice obtuso; apertura ampla, abbreviatim ovata; labro tenui, reflexo; pallide flavido-cornea, interdum rosaceo tincta.*

Long. 15, diam. 11 mill.

11. *BULIMUS ARGUTUS\**, Pse.

*B. t. ovata, tenuissima, pellucida, membranacea, nitida, anguste umbilicata; anfr. iv., convexis, ultimo ventricoso, suturis impressis; apertura ampla, ovata; labro simplici, reflexo; pallide straminea.*

Long. 13, diam.  $8\frac{1}{2}$  mill.

[\* This species is regarded as a *Partula* by Mr. Cuming.]



12. *BULIMUS ANNECTENS*, Pse.

*B. t. oblongo-ovata, tenui, pellucida, nitida, transversim conferte et regulariter striata, striis incrementi obsolete notata, anguste umbilicata; anfr. iv., convexis; apertura oblongo-ovali; labro simplici, reflexo; viridescente.*

Long. 13, diam.  $6\frac{1}{2}$  mill.

The above three delicate species appear to connect the *Partula* with certain *Bulimi* inhabiting the west coast of South America. The first two are decidedly Bulimoid; the last approaches so near the young of *Partula* in form that it may be mistaken for one. They are very rare, and very limited in their distribution.

13. *PARTULA PRODUCTA*, Pse.

*P. t. elongato-ovata, dextrorsa, solida, compresse umbilicata, tenuiter et irregulariter longitudinaliter striata; anfr. v., plano-convexis, sutura impressa; apertura oblongo-ovata, labro anguste rotundato; fusca vel flavicanter fusca, nigro-fusco trifasciata.*

Long. 22, diam. 12 mill.

The above species is wholly terrestrial in its habits; the lip on mature or old specimens is united over the body-whorl by a callosity.

14. *PARTULA LIGNARIA*, Pse.

*P. t. ovata, solidiuscula, dextrorsa, anguste umbilicata, sub lente minutissime transversim striata, irregulariter longitudinaliter striata; anfr. v., plano-convexis, sutura impressa; apertura rotundato-ovata, edentata, labro rotundatim incrassato; castaneo-fusco irregulariter longitudinaliter strigata, interdum omnino rufo-fusca.*

Long. 18, diam. 10 mill.

Var. *Fascia unica nigro-fusca cingulata, seu omnino flavide fusca.*

The tubercular tooth on the wall of the aperture is seldom wanting, and there is generally a slight angle in the outer lip at its junction with the body-whorl. It is allied to *P. tahitiana*; the latter, however, is more elongate, and both dextral and sinistral; it is more varied in its colours, and the lip is usually rosaceous.

15. *PARTULA CLARA* \*, Pse.

*P. t. ovata, subelongata, tenui, subpellucida, vix nitida, anguste umbilicata; anfr. iv., tenuiter et regulariter transversim striatis, plano-convexis; apertura ovata, subobliqua, edentata, labro plane incrassato; flavide cornea vel pallide castanea, strigis longitudinaliter variegata.*

Long. 16, diam. 10 mill.

Var. *Linea unica, vel lineis duabus tribusve cingulata.*

The above is allied to *P. hyalina*. That species is callous on the

[\* This shell appears to me a variety of the form returned by Mr. Cuming as *P. hyalina*, Brod.]



columella, is more oblique, and also more constant in its colours, never being banded\*.

16. *PARTULA ATTENUATA*, Pse.

*P. t. elongato-ovata, producta, tenuiore, transversim minutissime corrugatim striata; anfr. v., convexis, suturis impressis; apertura elongato-ovata, edentata, labro convexe incrassato, labio juxta suturam tenuiter calloso; pallide flavido-cornea.*

Long. 16, diam. 7 mill.

This elongate shell can only be compared with *P. amabilis*, Pfr.; it differs in the shape of its lip, and is also thicker. The localities are remote from each other.

17. *PARTULA PLANILABRUM*, Pse.

*P. t. elongato-ovata, solida, umbilicata; anfr. v., plano-convexis; apertura oblongo-ovali, subauriculata, dentata; labro oblique et late planato, intus incrassato, extus prominente; callositate denticulata; columella recta, ad basin angulata; castanea, ad suturas pallida, interdum fascia lata flavido-fuscescente cingulata.*

Long. 22, diam. 12 mill.

18. *PARTULA* (? var.) *LUGUBRIS* †, Pse.

*P. t. oblongo-ovata, solidiuscula, sordida, umbilicata; anfr. v., convexis; apertura subovata, edentata; labro vix calloso, oblique planato; castaneo-fusca, interdum linea vel fascia flavide cornea cingulata; labro purpureo-fusco tincto.*

Long. 19, diam. 10 mill.

This species is terrestrial in its habits.

19. *PARTULA GARRETTII*, Pse.

*P. t. oblongo-ovata, solidiuscula, transversim tenuiter striata; anfr. v., plano-convexis; apertura ovali, edentata, labro angulatim incrassato, marginibus callo tenuiore conjunctis; columella supra contorta, callosa; flavide cornea seu pallide castaneo-fusca, interdum fascia lata flavicante cingulata.*

Long. 16, diam. 9 mill.

20. *LAMELLINA LÆVIS* ‡, Pse.

*L. t. elongato-ovata, tenui, lævi, nitida, pellucida, fusco-cornea, imperforata; spira conica, acuta; anfr. v., rotundato-convexis, ultimo dimidium longitudinis subæquante; apertura subauriformi, lamellis internis iii.-iv., albis, marginibus lævibus; perist. acuto, simplici, margine columellari reflexo; lamella parietali compressa, prominente, longe intus producta; lamella columellari acuta.*

Long. 3, diam.  $1\frac{1}{4}$  mill.

[\* The shells sent by Mr. Pease as *P. hyalina* appear to me more nearly related to *P. simulans*, Pse. = *tenuata*, var.—P. P. C.]

[† This species is regarded by Mr. Cuming as probably a variety of *P. pacifica*, Pfr.]

[‡ Mr. Cuming regards this as the same with *L. serrata*, Pse.]

We are gratified in being able to confirm the above genus by a second species, in which the arrangement of the internal lamellæ is the same, their edges, however, being smooth.

21. *TORNATELLINA APERTA*, Pse.

*T. t. globoso-ovata, imperforata, tenui, pellucidu, nitida, fusco-cornea; spira obtusa, sutura impressa; anfr. iv., rotundato-convexis, ultimo subgloboso, duos trientes longitudinis subæquante; apertura ovata, subauriformi, magna, dimidium longitudinis testæ subæquante; labro tenui, acuta; columella compressa, bidentatu, oblique truncata; lamella parietali haud prominente; basi rotundata.*

Long.  $3\frac{1}{2}$ , diam.  $2\frac{1}{2}$  mill.

22. *TORNATELLINA OBLONGA*, Pse.

*T. t. oblongo-conica seu oblonga, tenui, fusco-cornea, imperforata; anfr. vi., convexis, ultimo in medio depresso, quartam partem longitudinis subæquante; apertura ovata, subauriformi; lamella parietali compressa; columella callo contorto subcoarctata.*

Long.  $4\frac{1}{2}$ , diam.  $1\frac{3}{4}$  mill.

23. *TORNATELLINA SIMPLEX*, Pse.

*T. t. conico-ovata, late umbilicata, tenui, pellucida, nitida, fusco-cornea; spira conica, acuta; anfr. v., convexis, ultimo dimidium longitudinis testæ haud æquante; sutura impressa; apertura subauriformi; labro tenui, acuto; columella supra late reflexa; basi rotundata.*

Long. 3, diam.  $1\frac{1}{2}$  mill.

24. *HELICINA SOLIDA*, Pse.

*H. t. lenticulari, solida, supra depresso-convexa, subtus convexa, oblique tenuiter striata, carinata; rufescente, fascia albicante ad suturam et basim, seu omnino rufa, seu cinerea, seu straminea; anfr. iv.-v., planulatis, sutura vix impressa; apertura late lunari, regione umbilicali callo copioso albido (rarius rubro aut stramineo) induta.*

Diam. 7, alt.  $3\frac{1}{2}$  mill.

25. *HELICINA CORRUGATA*, Pse.

*H. t. depressa, lenticulari, acute carinata, infra plano-convexa, spira vix elevata; anfr. v., subplano-convexis, suturis impressis; apertura late semilunari; perist. vix recurvo, ad basim angulato; columella callum influtum circumscriptem emittente, callo externe profunde sulcato; rufescente vel pallide straminea.*

Diam. 5, alt. 2 mill.

26. *REALIA PRODUCTA*, Pse.

*R. t. oblonga, solida, imperforata, sordide flavida seu corneo-fulva; anfr. vii., planiusculis, transversim obsolete striatis, striis incrementi obsolete insculptis, ultimo infra medium angulato; spira*

*plano-convexa, sutura impressa, interdum ad margines angulata et infra marginata; apertura parum obliqua, angulato-ovali; perist. vix reflexo, continuo, simplici; margine columellari subappresso.*

Long.  $7\frac{1}{2}$ , diam. 3 mill.

27. REALIA ABBREVIATA, Pse.

*R. t. ovata, solidiuscula, epidermide brunnea induta; anguste umbilicata; longitudinaliter minutissime striata; anfr. v.-vi., rotundato-convexis, ultimo subventricosus, sutura bene impressa; apertura rotundato-ovata, intus aurantiaca; perist. continuo, anfr. penultimo late adnato.*

Long. 6, diam. 3 mill.

28. HYDROCENA NITIDA\*, Pse.

*H. t. ovata, pyramidali, nitida, levi, solidiuscula; anfr. v., convexis, ultimo magno, dimidium longitudinis subæquante; rima umbilicali perforata; suturis impressis, interdum tenuiter marginatis; apertura ovata; perist. simplici, non continuo.*

Long.  $2\frac{1}{2}$ , diam. 2 mill.

29. HYDROCENA OVATA, Pse.

*H. t. conico-ovata, solidiuscula, fusco-cornea, perforata, levigata; anfr. v., rotundo-convexis, ultimo duas inter quinque partes longitudinis subæquante, subangulato; suturis bene impressis, vix angulatis; apertura ovata, supra angulata; perist. simplici, continuo, margine columellari adnato, juxta perforationem rugose sulcato et carinato.*

Long. 5, diam. 3 mill.

*Hab.* Mangiers.

30. CYCLOSTOMA BIANGULATUM, Pse.

*C. t. parva, ovato-conica, solidiuscula, fusca, anguste umbilicata, costulis granulosis et striis subtilissimis cincta; anfr. ultimo carinis duabus biangulato, ad angulos granulose costato; perist. continuo, ad anfr. penultimum vix adnato; regione umbilicali late sulcata et distincte carinata, costa granulosa marginata; apertura circulari, intus albida.*

Long. 3, diam.  $2\frac{1}{2}$  mill.

This species appears to be of the same type as *C. obligatum* (Gld.), from Metia Island.

31. CYCLOSTOMA PARVUM†, Pse.

*C. t. abbreviato-ovata, turbinata, levigata, imperforata, fulvo-cornea; anfr. iv., rotundatis, ultimo dimidium longitudinis subæquante; basi rotundata; sutura bene impressa; apertura rotundo-ovata; labro simplici, tenui; columella vix arcuata, callo albo induta.*

Long.  $2\frac{3}{4}$ , diam. 2 mill.

[\* Mr. H. Adams thinks that this species will prove to be an *Assiminea*.]

[† Mr. H. Adams thinks that this shell will prove to be a young *Realia*.]

The following list of supposed synonyms will be useful to the many naturalists, in this and other countries, who have received the shells with Mr. Pease's MS. names:—

- Helix fuscata*, Pse.=*nigritella*, var., teste H. Cuming.  
 — *nigritella*, Pse.=*trochiformis*, eod.  
 — *lenta*, Pse. } =*swainsoni*, var., eod.  
 — *scuta*, Pse. }  
 — *consimilis*, Pse.=*radiella*, Pfr., eod.  
 — *verticillata*, Pse.=*branea*, Ant., eod.  
*Vitrina depressiformis*, Pse.=*Helix alata*, Pfr., eod.  
*Succinea rutella*, Pse.=*semiserica*, Gld., eod.  
 — *ovata*, Pse. } =*papillata*, Pfr., eod.  
 — *labiata*, Pse. }  
*Partula gracilis*, Pse.=*amabilis*, Pfr., eod.  
 — *fasciata*, Pse.=*ganymedis*, Pfr., eod.  
 — *megastoma*, Pse.=*callifera*, Pfr., eod.  
 — *stolida*, Pse.=*vanikorensis*, Qy., eod.  
 — *lineolata*, Pse.=*filosa*, Pfr., eod.  
 — *striolata*, Pse.=*decussatula*, Pfr., eod.  
 — *vexillum*, Pse.=*lineata*, Less., eod.  
 — *affinis*, Pse.=*rufa*, Less., eod.  
 — —, var. *dubia*, Pse.=*varia*, var., eod.  
 — *crassa*, Pse. (= *perversa*, Pse., nom. præoc.) = *otaheituna*, Brug. (reversed), eod.  
 — *sinistrorsa*, Pse. } =*rubescens*, Rve., eod.  
 — *turricula*, Pse. }  
 — *radiata*, Pse.=*compressa*, Pfr., eod.  
 — *crassilabris*, Pse. } =*hebe*, Pfr., var., eod.  
 — *globosa*, Pse. }  
 — *suturalis*, Pse. (nom. præoc.) = *planilabrum*, Pse.  
 — *virginea*, Pse.=*solidula*, var., Pse., teste H. Cuming.  
 — *variabilis*, Pse. } =*navigatoria*, Pfr., eod.  
 — *fusca*, Pse. }  
 — *cognata*, Pse.=*rosea*, var., eod.  
 — *labiata*, Pse. }  
 — *imperforata*, Pse. } =*dentifera*, Pfr., eod.  
 — *ovalis*, Pse. }  
 — *protea*, Pse. }  
 — *citrina*, Pse. } =*faba*, varr., eod.  
 — *vittata*, Pse. }  
 — *robusta*, Pse. }  
 — *abbreviata*, Pse. }  
 — *umbilicata*, Pse. } =*auriculata*, varr., eod.  
 — *compacta*, Pse. }  
 — *bilineata*, Pse. }  
 — *recta*, Pse. }  
 — *rustica*, Pse. }  
 — *trilineata*, Pse. } =*nodosa*, Pfr., eod.  
 — *alternata*, Pse. }  
 — *simulans*, Pse.=*tæniata*, Mörch, var., eod.

*Partula elongata*, Pse.=*lineata*, var., eod. [Closely resembles a large *gracilis*.—P. P. C.]

*Melampus cinctus*, Pse.=*zonatus*, Mühl., eod.

— "*fuscus*, Phil.," Pse.=*philippii*, Küst., eod.

*Cyclostoma viridans*, Pse., is a *blanfordia*.

*Hydrocæna robusta*, Pse.=*Realia huaheinensis*, Pfr., teste H. Cuming.

— *elongata*, Pse.=*Realia scitula*, Gld., eod.

— *costata*, Pse.=*Realia taheitensis*, eod.

*Truncatella cylindrica*, Pse.=*Taheitia scalaris*, Mich., eod.

*Helicina cincta*, Pse. } = *maugerae*, Gray, eod.

— *rubicunda*, Pse. } = *maugerae*, Gray, eod.

— *bella*, Pse. }

— *rufescens*, Pse.=*rolvii*, Pfr., eod.

— *lenticulina*, Pse.=*solidula*, eod.

— *straminea*, Pse.=*pisum*, Phil., eod.

— *picta*, Pse.=*articulata*, Pfr., eod.

— *faba*, Pse. }

— *discoidea*, Pse. } = *albolabris*, Jacq., eod.

— *tenuinacula*, Pse. }

— *turbinella*, Pse. }

— *subrufa*, Pse. }

— "? *multicolor*," Pse. } = *minuta*, Sby., eod.

— "? *inconspicua*," Pse. }

— "? *vescoi*, Dohrn," Pse.=*haulieinensis*, eod.

##### 5. REMARKS ON THE SPECIES OF SUCCINEA INHABITING THE TAHITIAN ARCHIPELAGO, WITH DESCRIPTION OF A NEW SPECIES. BY W. HARPER PEASE.

Nine species of the above genus have been described from the islands of Tahiti and Eimeo, viz. *S. procera*, Gld., *S. infundibuliformis*, Gld., *S. humerosa*, Gld., *S. pudorina*, Gld., *S. modesta*, Gld., *S. tahitensis*, Pfr., *S. pallida*, Pfr., *S. gouldiana*, Pfr., *S. papillata*, Pfr.

Having had the opportunity of examining a large collection from every part of the several islands, we learn that the same general type prevails over all, and extends even to the groups west. There are, however, characters peculiar to the species on the several islands which serve to distinguish them. Of the described species we consider *S. humerosa*, Gld., the same as *S. tahitensis*, Pfr. It is the most common species at Tahiti, and abounds on all parts of that island. From its wide distribution, it varies much in colour and shape. It is, however, the only species perceptibly angulated. The transverse furrows noticed by Dr. Gould occur on about one specimen in five; the angulation the same. *S. humerosa* should be considered the type, as the paler variety, *S. tahitensis*, is rarely met with. Another variety, quite white, which is rare, has not as yet been noticed. The *S. pallida*, Pfr., is evidently not from Tahiti. The "*perist. margine incrassato*" would place it among the species



inhabiting the island of Raiatea. *S. pudorina*, Gld., we also consider a doubtful species. The markings and colours of the animal, as described by Dr. Gould, are somewhat similar to those of *S. humerosa*; and we can select specimens, which are undoubtedly the *S. humerosa*, which correspond with the shell. We add a description of the following new species:—

SUCCINEA COSTULOSA, Pse.

*T. ovata, tenni, flavide cornea, longitudinaliter irregulariter costulosa; anfr. iii., anfractu ultimo interdum superne obsolete rotundatim angulato; apertura ovata, columella arcuata, subplicata.*

Long. 7, diam. 5 mill.

6. A REVISION OF THE GENERA AND SPECIES OF URSINE ANIMALS (URSIDÆ), FOUNDED ON THE COLLECTION IN THE BRITISH MUSEUM. BY DR. J. E. GRAY, F.R.S.

The family of Bears (*Ursidæ*) are characterized among the Carnivora by having the three hinder upper grinders (that is to say, the hinder false grinder, the flesh-tooth, and the tubercular tooth) very similar in form; they are broad and strongly tubercular. The three hinder teeth in the lower jaw are similar, but they are narrower and more elongate.

They form a very natural group, consisting only of a limited number of species. The species require particular study, as they are very similar externally; and the skull and teeth, which are very similar in many of the specimens, appear to be liable to a considerable amount of variation in specimens from the same locality, and with the same habits.

The examination of the bones and especially the skulls of the *Ursidæ* shows still further than the study of the bones of the *Viverridæ* the necessity of great caution in depending on the study of osteological specimens for the distinction of species. The fact that M. de Blainville considers the Californian Grisly Bear, after a very careful study and comparison of its bones, to be only a variety of the common European Bear, shows how a most experienced and accurate osteologist may be misled by placing too much confidence in a single branch of study. If such a naturalist may be so misled by the study of the bones of recent animals, how much more caution is required in giving any opinion or forming any theory on the study of fossil specimens of bones, where the determination of the osteologist cannot be verified by the examination of other parts of the animal in its perfect state!

The species of *Ursidæ* are distributed over Europe, Asia, Africa, and America, and they are generally inhabitants of the mountainous regions of these countries. One species is marine, and common to the Arctic parts of Europe, Asia, and America.

## Section I. BRACHYPODA. Toes straight; claws exerted.

A. *Tail very short; body massive; limbs short; nose short; teeth 42.*  
Ursina.

a. Sea-Bears. *Soles of the feet hairy, with a few bald pads. The tubercular grinder longer than the flesh-tooth. Lips slightly extensile. Cutting-teeth 6/6. Ears rounded, hairy.*

1. THALASSARCTOS. *Nose of skull produced, longer than broad. Front false grinders small, far apart; upper tubercular moderate.*

b. Land-Bears. *Soles of the feet bald, callous. Cutting-teeth 6/6. Lips slightly extensile. Cover of nostrils moderate. Ears rounded, hairy. Underside of the base of the toes hairy.*

2. URSUS. *Nose of skull produced, longer than broad, rounded above. Forehead convex, separated from the nose by a cross line. False grinders far apart, small. Palate flat. Brain-case swollen. Lower jaw moderate.*

3. MYRMARCTOS. *Nose of the skull produced, much longer than broad, flat above. Nose, forehead, and front of crown all on one line. False grinders far apart, small. Palate concave. Brain-case compressed. Lower jaw large, elongate.*

4. HELARCTOS. *Nose of skull very short, as broad as long, forming a line with the forehead. False grinders crowded, large. Palate broad, flat.*

c. Honey-Bears. *Soles of the feet bald, callous. Cutting-teeth 4/6. Lips very extensile. Nostrils large, with a large cover. Front of palate bent up. Ears tufted. Underside of base of toes bald.*

5. MELURSUS. *Nose of the skull produced, longer than broad, rounded above. False grinders far apart; upper hinder tubercular short.*

B. *Tail elongate; body and limbs moderate; teeth 40.*

\* *Head elongate; nose produced, mobile; underside convex, rather bald, without any longitudinal central groove. Nasuina.*

6. NASUA.

\*\* *Head ovate; nose short; underside flat, hairy, with a central longitudinal groove. Procyonina.*

7. PROCYON.

Section II. DENDROPODA. Toes short, arched ; claws retractile.

A. *Tail prehensile ; soles bald.* Cercoleptina.

8. CERCOLEPTES.

B. *Tail bushy ; soles hairy.* Ailurin.

9. AILURUS.

#### Section I. BRACHYPODA.

The broad-footed Bears. *The feet broad and short, generally bald and callous below ; toes straight ; the claws exerted, more or less curved, blunt.*

*Brachypoda*, Gray, Proc. Zool. Soc. 1864, p. 506.

#### Tribe 1. URSINA.

*Tail short or none ; body massive ; limbs short.*

*Ursina*, Gray, Cat. Mamm. B. M. 72.

They sometimes climb trees, but usually descend backwards. When running, they carry their young on their back.

In the 'Annals of Philosophy' for 1825, I divided the Bears into groups, according to the characters of their feet and claws, and into the genera *Ursus*, *Danis*, *Prochilus*, and *Thalassarctos*.

The examination of the series of skulls of Bears in the Museum, like the examination of the series of bones of the Viverridæ, has strongly impressed me with the uncertainty that must always attend the determination of fossil bones, or indeed of bones of all animals when we have only the skulls or other bones of the body to compare with one another. There can be no doubt that the study and comparison of the bones of the different species is very important—that the skull and teeth afford some of the best characters for the distinction of the genera and species ; but few zoologists and palæontologists have made sufficient allowance for the variations that the bones of the same species assume. In the Bears I have observed that there is often more difference between the skulls of Bears of the same species from the same locality than between the skulls of two undoubted species from very different habitats and with very different habits. Thus I have the skulls of some Bears, the habitat of which is not certainly known, which I have doubts whether they should be referred to the Thibet Bear (*U. torquatus*) or to the North American species (*U. americanus*) ; but I have referred them to the latter with doubt, as they were said to come from the latter country. It is the same with regard to the skull of a Bear that lived in the Zoological Gardens for years, which has the general form of the skull and the wide palate of the European Bear, but the long last grinder and some other characters of the *Ursus ferox*.

This similarity of the skull is more remarkable, as no two Bears

can be more distinct from each other than the species above named which have such similar skulls, showing that similar skulls do not always imply very nearly allied or doubtfully distinct species.

The Bears may be arranged, by the size of the tubercular grinders, thus:—

Very large, more than half as long again as the flesh-tooth. (The number gives the medium measurement of the flesh-tooth, in inches and twelfths.) 1" 4"', *Ursus isabellinus*. 1" 5"', *U. cinereus*. 1" 4"', *U. grandis*. 1" 3"', *U. torquatus*.

Moderate above, half as long again as the flesh-tooth. *Thalassarctos maritimus*. 1" 2"', *Ursus arctos*. 1", *U. arboreus*. 1", *U. americanus*. 1" 6"', *Myrmarcos*.

Small, only rather larger than the flesh-tooth. *Helarcos malayanus*, *Melursus libycus*.

A. Sea-Bears. *Soles of the feet covered with close-set hairs, with a few small bald pads. Head elongate; forehead scarcely raised above the line of the nose; cutting-teeth 6/6; lips slightly extensile; nostrils moderate.*

#### 1. THALASSARCTOS.

Head elongate; ears rounded, hairy; forehead scarcely raised above the line of the nose. Neck elongate. Feet broad, large; front claws elongate, curved. Fur soft, short, dense. Skull elongate. The upper tubercular grinder elongate. The palate broad, concave, rather contracted behind, and then suddenly contracted behind the last tooth. The hinder nasal aperture elongate, narrow, the sides much longer than the front edge, which is arched; the sides bent in towards the middle, contracting the aperture.

*Sea-Bears (Thalassarctos)*, Gray, Ann. of Philos. 1825.

*Thalassarctus*, Gloger, 1842.

*Hab.* Arctic Seas.

#### THALASSARCTOS MARITIMUS.

B.M.

White or yellowish white.

*Ursus maritimus*, Desm. Mamm. 165; Schreb. Säugeth. 513, t. 141\*; Fischer, Syn. Mamm. 145; Baird, Mamm. N. A. t. 44 (skull); Temm. Fauna Japon. 29; Schrenck, Amurland, i. 16.

*U. marinus*, Pallas, Reis. iii. 691; P. Z. S. 1859, p. 102.

*U. polaris*, Shaw, Mus. Lever. i. 7, t. 2.

*U. albus*, Brisson, Règne Anim. 260.

*Thalarcos polaris*, Gray, Ann. Philos. 1825, p. 62.

*Thalassarctos maritimus*, Gray, Cat. Mamm. B. M. 73; Bonap. Cat. Mamm. Eur. 11.

*Ours blanc (U. maritimus)*, De Blainv. Ostéogr. t. 1 (skeleton ♀), t. 4 (bones), t. 5 (skull ♀).



*Ours blanc*, Buffon, H. N. xv. 128 ; Suppl. iii. 200, t. 34.

*Ours polaire*, Cuv. Ménag. Mus. ; Oss. Foss. iv. t. 20. f. 4, t. 21. f. 4.

*Polar Bear*, Penn. Syn. 192, t. 20. f. 1 ; Shaw, Zool. i. 257, t. 105.

*Hab.* Arctic Seas of Europe, Asia, and America ; Japan (*Siebold*).

Skulls.	Length of upper tubercular.		Length of skull.		Width of skull.		Width of nose.		Width at orbits.		Length of palate.		Width of palate.		Length of nose.		Height of orbit.	
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.
221 c. Adult.....	1	2	15	3	9	6	3	7	4	0	7	9	2	7	4	9	2	2
221 d. Young .....	1	0	12	6	8	0	2	9	3	0	6	6	2	0	3	11	1	9
221 h. Young .....	1	0	12	6	7	0	2	8	2	1	6	7	2	3	3	9	1	6

B. Land-Bears. *Soles of the feet bald, callous. Cutting-teeth* 6/6. *Ears rounded, hairy. Lips slightly extensile. Nostrils oval, with a moderate lid. Underside of the base of the toes hairy. The upper tubercular grinder elongate.*

## 2. URSUS. Carrion-Bear.

Head elongate. Ears rounded, hairy. Nose rather produced, compressed. Forehead rounded. Nostrils ovate, covered with a moderate lid. The underside of the base of the toes covered with hair, making an hairy band between the toe-pads and the soles of the feet. Nose of the skull produced, as wide or wider than the forehead between the orbits, rounded above, separated from the more or less convex forehead by a cross line, which is less distinct as the animal becomes aged. Front false grinders small, far apart ; hinder tubercular grinder large, elongate, larger than the flesh-tooth. Palate flat or slightly concave. The aperture of the hinder nostrils with the sides longer than the width of the front edge. The aperture for the blood-vessel to the palate is behind the front edge of the tubercular grinder.

Middendorf, in his 'Mammalia of North and East Siberia,' has a very long essay on the Bears. He regards the species found in Europe and Northern Asia and the Grizzly Bear of North America as varieties of *Ursus arctos*. He enters into a minute examination and comparison of the external and osteological characters, and gives most minute measurements, in elaborate tables, to support this conclusion ; but I think that his not having been able to distinguish the Ant- from the Carrion-Bear (and he figures a skull of each as a subvariety of *Ursus arctos*, var. *beringiana*) must make one cautious in accepting his theory without more examination.

Von Schrenck, in his 'Amurland,' says that the size of the tubercular grinder varies in the Bears of North Asia ; but I suspect he also has combined the Carrion-Bear and the Ant-Bear into one species.

a. Old-World Bears. *The fur shaggy. The hind feet elongate. The claws moderate. The palate flat, rather broad.* URSUS.  
*European Bears*, Gray, Ann. Phil. 1825.

\* *Fur shaggy, brown, or grey, or whitish.*

1. URSUS ARCTOS.

Brown or blackish; fur shaggy; hair longer on the withers.  
 The palate broad. The upper tubercular grinder nearly half as long again as the flesh-tooth.

*Ursus fuscus*, Albert. Magn. de Anim. lib. xxii. p. 183.

*Ursus arctos*, Linn. S. N. 169; Pallas, Zoogr. Ross. Asiat. i. 64; De Blainv. Ostéogr. t. 6, t. 7 (adult skull).

*Ours brun d'Europe*, Cuvier, Oss. Foss. iv. 332.

*Ursus cadaverinus*, Eversm. Bull. Soc. Nat. Mosc. 1840, p. 8, pl. i. f. 1.

*Brown Bear*, Pennant, Arctic Zool. i. 61.

Var. 1. *normalis*. The upper tubercular grinder nearly half as long again as the flesh-tooth. Lower edge of lower jaw straight.

Subvariety a. *scandinavicus*.

B.M.

*Ursus arctos*, Linn. Faun. Suec.; Nilsson, Scand. Fauna, fig. t. 23 (ring-necked variety).

*Hab.* Sweden.

Nilsson describes six varieties found in Sweden:—1. Black; 2. Dark brown; 3. Brown, white-washed (the *Silfver bjorn*); 4. Red-brown; 5. Brown, with a white ring on the neck; 6. Variegated or Albino Bear (*l. c.* p. 193).

Subvar. b. *Ildgeesdjur*, Worm. Mus. 318.

*Hab.* Norway.

Subvar. c. *rossicus*. Russian Bear.

*Hab.* Russia.

Subvar. d. *sibiricus*.

*Hab.* Siberia.

Fur in all states and ages brown.

Subvar. e. *meridionalis*, Middendorf, Sibir. Reise, 74; Schrenck, Amurland, 13.

*Hab.* Caucasus.

Subvar. f. *polonicus*.

*Ours brun de Pologne* (première variété), Cuvier, Oss. Foss. iv. 332, t. 22. f. 3; De Blainville, Ostéogr. t. 7. f. (adult skull).

Crown of the skull very high over the condyles, and sloping down rapidly behind and before; canines very large, lower edge of lower slightly curved.

Subvar. g. *pyrenaicus*.

*Ours brun des Alpes*, Buffon, H. N. viii. 24, 86, 61; Cuvier, Oss. Foss. iv. t. 22. f. 1, 2.

*Ours brun des Pyrénées*, Cuv. Oss. Foss. iv. 332.

*Ours des Asturies*, fœm. (*U. arctos*), De Blainv. Ostéogr. Ursus, t. 3 (skeleton), t. 7 (skull ♂, adult).

*Ursus arctos*, Schreb. t., from Buffon.

*U. pyrenaicus*, F. Cuv. Mamm. Lithogr. xlv. t. (young); Fischer, Syn. Mamm. 142.

*Hab.* Pyrenees.

Fur of young yellowish; hairs brown, yellow-tipped; head deep yellowish; feet black.

Subvar. h. *niger*. Fur black-brown.

*Ursus niger*, Albert. Magn. de Anim. lib. xxii. 183.

*U. arctos niger*, Gmelin, Syst. Nat. i. 100.

*Ours noir d'Europe*, Daubenton; Cuvier, Oss. Foss. iv. 333, t. 20. f. 2-5, t. 21. f. 1, 2, 6-8.

*Ursus niger*, F. Cuvier; Fischer, Syn. Mamm. 143; Keys. & Blasius, Wirb. Eur. xix. 64.

*U. arctos*, var., Nilsson, Scand. Fauna.

*Hab.* Europe (*Daubenton* and *Cuvier*).

Skulls.	Length of tubercular grinder.		Length of skull.		Width of skull at condyle.		Width of nose.		Width at orbits.		Length of palate.		Width of palate.		Length of nose.		Height of orbit.	
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.
218 e. Nose above rounded	1	2	13	6	9	8	3	6	4	0	6	10	2	4	4	3	2	2
218 f. " " "	1	2½	13	0	8	3	3	0	3	0	7	0	2	1½	4	5	1	10
218 a. Nose flattened above	1	2½	13	4	9	9	3	2	3	5	7	3	2	5	4	10	1	11

Skull of adult from Sweden. Presented by the Earl of Selkirk.—Like former, 218 e, the palate is rather concave; but the hinder part in front of the inner nostril is flat, and the cavity of the inner nostril contracted, with a thick arched front edge, of nearly the same width, to the back one. The lower jaw with a long, regularly arched suture. Length of the skull, from the front teeth to the end of the condyle,  $13\frac{3}{4}$  inches; width at back of zygoma  $10\frac{1}{2}$  inches, of the nose  $3\frac{1}{4}$  inches; the hinder nostrils wide in front ( $1\frac{1}{2}$  inch) and behind ( $1\frac{1}{2}$  inch); the length of the suture of the lower jaw  $3\frac{1}{2}$  inches.

Skull of adult, of large size.—The nose very broad, swollen, evenly rounded above. The palate rather concave, deeply concave and rather contracted behind, in front of the large hinder openings of the nostrils, which contracts on the sides behind, and with a thin regularly rounded front edge. The front of the chin of the lower jaw rather short, keeled on the suture. Length of the skull, on the inner side, from front teeth to the end of the condyles,  $13\frac{1}{2}$  inches; width of the skull at the hinder edge of the zygoma, in a line with the

condyles of the lower jaw, 10 inches; width of the nose at the aperture of the vessel in front of the zygoma  $3\frac{3}{4}$  inches; width of the front part of the hinder opening of the nostrils  $1\frac{1}{2}$  inch, of hinder part 1 inch. Length of suture of lower jaw 3 inches.

Skull of a nearly adult, collected by Mr. Lloyd in Sweden.—The palate is rather concave in the middle in front, and is raised on a line with the false grinders; it is flat behind, with a thin edge to the broad internal nostril, which has a transverse front edge; the aperture is large, rather wider behind than in front. Lower suture of lower jaw long and regularly curved. Length of skull, from cutting-teeth to end of condyle, 13 inches; width of skull at back of zygoma 9 inches; width of nose 4 inches, of hinder nostrils  $1\frac{1}{4}$  inch; width of nose-aperture  $2\frac{1}{4}$  inches, rather wider than high. Length of suture of lower jaw 3 inches; length of grinder  $1\frac{1}{4}$  inch, of all three.

Cuvier, from the examination of two skulls in the Paris Museum, regards the Black Bear of Europe as a distinct species (see Oss. Foss. iv.). Keyserling and Blasius, in 'Die Wirbelthiere Europas,' 1840, separate it from the *U. arctos*, because it has the "last upper grinder shorter than the flesh-tooth," probably misled by Cuvier's figure (Oss. Foss. iv. t. 21. f. 6); but if they had looked at the other figures, they would have seen that the last grinder is represented long, like that of the other European Bears. Blasius, in his 'Naturg. der Säugethiere Deutschlands,' 1857, does not give the *U. niger* as a distinct species; and Nilsson (Scand. Daggdjur, 1847, p. 208) evidently considers it only a variety of *U. arctos*.

*Ursus falciger* of Reichenbach, which is said to have rather fal-cated claws, is probably from a specimen which had been long kept in confinement without exercise, when the claws lengthen and curve.

Var. 2. *grandis*.

B.M.

The upper tubercular grinder elongate, more than half as long again as the flesh-tooth; lower edge of lower jaw straight. Fur dark red-brown, of uniform length, smooth.

? *Græssdjur*, Worm. Mus. 328.

*U. arctos*, Fraser, Cat. Zool. Gard. (male).

*Hab.* North of Europe. A male, purchased at Hull, living in the Zoological Gardens from 1852 to 1863.

	Length of tubercular grinder.		Length of skull.		Width of skull.		Width of nose.		Width at orbits.		Length of palate.		Width of palate.		Length of nose.		Height of orbit.		
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	
218g. ....	1	4	11	6	7	2	9	2	8	1	6	3	1	11	1	3	10	2	7
	1	4	14	6	9	3	4	1	3	4	1	5	2	3	4	6	2	1	

Skull of very old animal, with the crown-crests very high.—Nose broad, as broad as the width of the forehead between the orbits, rather flattened above. Forehead concave in the middle, in front



and between the orbits. The zygomatic arches very broad and convex. The orbit small, rather oblong, oblique. The palate nearly flat, broad. The tubercular grinders very large, elongate, full half as long again as the flesh-teeth.

This skull is full as large as that of *U. ferox*, but more ventricose; the palate is broad, as in *U. arctos*; but the tubercular grinder is longer, and as long as that of *U. ferox*. I am inclined to regard it as a good species, but wait for further specimens.

In a smaller skull of an adult Bear, sent from Sweden by Mr. Lloyd, the palate is even and rather concave. The hinder aperture of the nostrils is rather wide, scarcely contracted behind, and regularly arched in front, with a slight central tubercle. The length of the skull below, from front teeth to condyle,  $1\frac{3}{4}$  inch, of palate  $6\frac{1}{4}$  inches; width at condyles of lower jaw  $6\frac{1}{2}$  inches, of nose in front of orbit  $2\frac{2}{3}$  inches, of nose-aperture  $1\frac{3}{4}$  inch, higher than wide; length of suture of lower jaw  $2\frac{1}{2}$  inches; length of hinder upper grinder  $1\frac{1}{2}$  inch, rather longer than in the other larger skulls, and much longer than in the skulls of nearly the same size from Norway, where the tooth is only  $1\frac{1}{2}$  inch long; width between orbits  $2\frac{2}{3}$  inches, at back of orbit  $3\frac{2}{3}$  inches.

Var. 3. *collaris*.

Fur shaggy, hair long, with closer under-fur, black-grey; the legs and feet blacker; the head pale brown; the shoulders often marked with a white oblique streak, making a collar.

*Ursus collaris* (*Ours de Sibérie*), F. Cuvier, Mamm. Lithogr. xliii.

*Ursus arctos*, var. *beringiana* (partly), Middendorf, Sib. Reise, i. 53, 74, t. 1. f. 1-4 (skull); Von Schrenck, Reise nach Amurland, i. 11, 13, 16.

*Ursus ferox*, Temm. Fauna Japon. (not *Lewis* and *Clark*).

*A Brown Bear from Hakodadi*, Selater, P. Z. S. 1864, p. 374.

*Hab.* Kamtschatka and Amurland; Japan, Northern Island; Zool. Gardens.

The French naturalist of the 'Venus' obtained a Brown Bear at Kamtschatka, and carried it alive to Paris; and they considered it like the true *U. arctos* (Baird, Rep. p. 221).

This Bear is very unlike the *Ursus arctos* of Sweden, with which alone I have the opportunity of comparing it.

It is only necessary to compare the figures of the two skulls given in the plate of Middendorf, above referred to, to see the distinction between the skulls of the Carrion- and Ant-Bear of Northern Siberia. The Carrion-Bear (*U. collaris*) has a short, broad skull, with a short nose and small, short lower jaw; the Ant-Bear has an elongated, narrow skull, with an elongated nose and a large, strong lower jaw: the lower jaw in the first, three-fifths; in the second, five-sevenths the length of the skull.

Var. 4? *stenorostris*.

Nose of the skull produced, attenuated. Lower edge of lower jaw arched.

*Ours brun de Pologne* (seconde var.), Cuvier, Oss. Foss. iv. 332, t. 22. f. 4.

*Ours brun élané de Pologne*, De Blainv. Ostéogr. t. 7 (skull).

*Hub.* Europe, Poland.

Only known from a skull in the Paris Museum. It is very different from the other skull from Poland; the nose is much more produced; the crown more evenly convex; the forehead raised more suddenly from the nose; the lower edge of the lower jaw curved, much arched up behind. I have not seen it: it may be only an accidental variety.

## 2. URSUS ISABELLINUS. Indian White Bear.

B.M.

Fur dirty white or yellowish; hairs of the back and nape elongated, very soft, curled, of the sides rigid, adpressed; claws short, straight, and blunt; forehead of skull convex over the orbits, separated from the nose; palate flat, rather slender, narrow; the upper tubercular grinders long, considerably more than half as long again as the flesh-tooth.

*Ursus isabellinus*, Horsf. Linn. Trans. xv. 332; Fischer, Syn. Mamm. 143; Gray, Cat. Mamm. B. M. 72; Cat. Hodgson Coll. B. M. 15; Fraser, Cat. Mamm. Z. S. 2; Hodgson, J. A. S. B. i. 340, x. 910, xi. 282; P. Z. S. 1834, p. 96; Calcutta, J. N. H. iv. 288.

*U. arctos albus*, Gmelin, S. N. i. 100.

*Ours blanc terrestre*, Buffon, H. N. viii. 248, t. 32.

*Hab.* Nepal, Thibet (called "Ritck" by the Nepalese).

	Length of upper tubercular.		Length of skull.		Width of skull.		Width of nose.		Width at orbits.		Length of palate.		Width of palate.		Length of nose.		Height of orbits.	
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.
1010 d. ♂ Cashmere, old ...	1	3½	12	6	7	3	2	8	2	6	6	9	2	0	4	3	2	0
1010 c. ♀ Cashmere .....	1	3½	10	6	6	8	2	6	2	7	5	8	1	9	3	7	1	9
1010 e. ♀ Cashmere, young.	1	4	9	9	5	6½	2	0	2	0	5	3½	1	6	3	3	1	6
1010 f. Cashmere .....	1	4	11	6	6	11	2	7	2	9	6	1	1	10½	3	11	1	9

The skull rather short. Nose narrowed, compressed, flat at the top, with a very large nasal aperture, not so wide as the forehead between the orbits. Forehead broad, flat, convex, on a line, at the back edge of the orbit, with a concavity in the middle in front of the orbit; the most convex part of the crown over the condyles. Orbit oblong, oblique, much higher than broad; zygomatic arches regularly convex, more prominent in the middle of their length. Cutting-teeth normal; the outer in both jaws larger, with a lobe; the two front upper false grinders small, first smallest; the hinder upper grinder very large, elongate, much larger than the flesh-tooth. The palate flat, moderately broad, suddenly contracted behind, on a line rather behind the hinder edge of the last tooth; inner nasal apertures moderate, truncated in front, the sides half as long again as the front edge. Lower jaw with a rather large chin and a flat lower edge.

The British Museum received, in 1853, three skulls (*c*, *d*, *e*) of the "White Bear of Cashmere" from Lieut. Abbot, belonging to a male and two females. They all have a rather convex forehead, which is well separated from the nose by a depression in front of the orbits. This depression is much more deep and decided in the females than in the males; in one it forms a deep concavity in the middle of the forehead between the orbits. In one female the crown behind the orbits is flat, short, rhombic, broad; and in the other it is much larger, more oval, and convex. In the male and one female the nose-hole is higher than broad, and in the other female broader and lower. They all have a large elongated upper tubercular grinder.

### 3. URSUS SYRIACUS. Syrian Bear.

B.M.

Fur dirty yellowish; the palate narrow, concave; the tubercular grinder very broad, strong, not half as long again as the flesh-tooth; the forehead flat, nearly on a line with the very broad nose; the aperture of the nose large, broad, as broad as high.

*Ursus syriacus*, Hempr. & Ehrenb. Symb. Physicæ, i. t. 1.

*Hab.* Syria, Mount Lebanon (*Ehrenb.*); Persia? (*Fraser*).

This Bear is very like *U. isabellinus* in external appearance; but the form of the skull is very different. The nose is broader, striated, and only separated from the forehead by a very slight depression. The upper tubercular grinder is shorter and thicker than in the generality of the skulls of the Indian White Bears.

The skulls of the adult and half-grown Bears from Syria are very like that from Cashmere of the same age; but the forehead is rather broader and more convex, and it extends further back between the temporal muscles. The nose is considerably broader at the end, being 3 inches and 1 line over the canines, and only separated from the forehead by a very slight depression; while in the male *U. isabellinus* it is only 2 inches and 9 lines wide. The outer maxillæ on the sides of the nasal broad. The lower jaw is stronger and higher, especially at the hinder part. The zygomatic arch is much wider and stronger, especially in the front part under the orbit. The upper tubercular grinder is thicker, but shorter than in the skulls from Cashmere.

	Length of tubercular grinder.		Length of skull.		Width of skull.		Width of nose.		Width at orbits.		Length of palate.		Width of palate.		Length of nose.		Height of orbit.		
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	
1010 <i>b</i> . Zool. Gardens; Syria	1	3	12	9	7	6	3	0	2	8	6	7	1	11	1	4	1	1	9
1010 <i>a</i> . .....	1	2½	10	9	6	2	2	4	2	4	5	8	1	9	3	9	1	8	

The skins of each of these animals are in the British Museum: *b* is a large whitish animal; *a* is a smaller pale-brown one.

They were both formerly living in the Zoological Gardens.

\*\* *Fur short, close, uniform, deep black.* Asia.

4. *URSUS TORQUATUS.* Indian Black Bear.

B.M.

Fur black; chin white; a broad, forked, white mark on the chest, rather contracted behind; cheeks with prominent bushy hairs; face brownish; palate of skull narrow, concave; upper tubercular elongate, half as long again as the flesh-tooth.

*Ursus thibetanus*, F. Cuvier, Mamm. Lithogr. t.; Fischer, Syn. Mamm. 145; Owen, P. C. S. Z. S. i. 76, 1831 (anatomy); Radde, Mélanges Biologiques de St. Pétersbourg, iii. 677, 1861; Hodgson, J. A. S. B. i. 340, x. 910; P. Z. S. i. 96; Calcut. J. N. H. iv. 288.

*U. ferox*, Robinson, Assam, 69.

*Helarctos malayanus*, Hodgson, J. A. S. B. i. 340.

*H. tibetanus*, Gray, Cat. Mamm. B. M. 73; Hodgson, Cat. B. M. 15; Horsfield, Cat. Ind. House, 124.

*Ursus torquatus*, Schinz, Syn. Mamm. 302; Wagner, Suppl. Schreb. t. 141 D; Hügel, Kaschmir, iv. 570; Fraser, Cat. Mamm. Zool. Soc. Gard. 2.

*Hab.* India, Nepal, central hilly region (*Hodgson*); East Siberia (*Radde*). Not found in Thibet (*Hodgson*, J. A. S. B. xi. 282).

Skulls.	Length of upper tubercular.		Length of skull.		Width of skull.		Width of nose.		Width at orbits.		Length of palate.		Width of palate.		Length of nose.		Height of orbits.	
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.
219 <i>b.</i> .....	1	3	11	3	6	6	2	6	2	9	5	8	1	5	3	6	1	6
219 <i>h.</i> .....	1	3	11	0	6	6	2	6	2	7	5	9	1	8	3	4	1	5

The specimen *h*, which has the wider palate, also has a much more convex forehead.

Var. 1. *arboreus*.

Upper tubercular and nose shorter.

*Ursus hindaicus arboreus*, Oldham, MS. B. M. (young skull).

*Hab.* Darjeeling (*Oldham*, *Hodgson*).

The skull has a broad short nose, rounded above; the nose-opening as high as wide; forehead convex, broad, rounded on the sides; nasal bones very broad, large, extending back to a line even with the middle of the orbits; lower edge of lower jaw straight; the last tubercular grinders broad, larger than the flesh-tooth, oblique, truncated on the outer hinder side, not wider than long; palate nearly flat, slightly concave in front, rather contracted behind, on a line with the last edge of the tubercular grinder; hinder opening of the nostrils elongate, scarcely contracted behind, sides longer than the width of the front edge.



Skulls.	Length of upper tubercular.		Length of skull.		Width of skull.		Width of nose.		Width at orbits.		Length of palate.		Width of palate.		Length of nose.		Height of orbit.	
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.
219 <i>f.</i> Hodgson's.....	1	0½	10	9	6	9	2	6	2	11	5	7	1	7	3	4	1	6
219 <i>g.</i> .....	1	0	9	9	5	11	2	4	2	5	5	3	1	5	2	9	1	6
219 <i>c.</i> Oldham's (young) ...	1	0½	8	6	5	4	2	1	2	4	4	9	1	4	2	6	1	3

Two of these specimens (*g* and *c*) have a much shorter nose than the generality of the skulls of *U. torquatus*; but *f*, which has also a short tubercular grinder, like them has the nose of the skull of the usual length; they all have rather narrow palates. The forehead of *f* is convex and rounded.

Skull elongate. Nose broad, compressed, the sides shelving above, and flat over the nasals; nasals short, scarcely reaching to the front edge of the orbits. Orbits oblong, ovate, longitudinal. The forehead between the orbits convex, rounded, rather wider than the hinder part of the nose. The crown arched, the most convex part being in front of the condyles. The zygomatic arch narrow, elongate. The palate narrow, deeply concave in front, narrower between the tubercular teeth, narrower behind, with a large elongate opening to the hinder nostrils, which has an arched front edge, and the side more than twice the length of the width of the front edge. The tubercular grinder very large, wide, oblong, as wide and much longer than the flesh-tooth.

As in the other Bears, the skull varies in the width and form of the front edge of the opening of the hinder nostrils, and also a little in the surface of the palate. There is in the Museum a specimen of a young Bear, received from Mr. Oldham under the name of *Ursus hindaicus arboreus*, that has a wide front edge to the hinder nostrils; and the palate in front of the opening is concave, with a slight keel on each side; but we have a skull of a young *Ursus tibetanus*, from Mr. Hodgson, with a similar opening to the hinder nostrils.

##### 5. URSUS JAPONICUS.

Black; fur short, dense, polished; hair on sides of neck longer; face black, clothed with short hair; ears large; throat with a slight, undefined whitish line; head short, rounded; muzzle rather short.

*Ursus japonicus*, Scater, P. Z. S. 1862, p. 261, pl. xxxii.

*U. tibetanus*, Temm. Fauna Japon. 29.

*Hab.* Japan (*Vivar. Soc. Zool.*).

##### 6. URSUS FORMOSANUS.

B.M.

Black; hair short; chest with a large white crescentic mark.

*Sun-bear of Formosa (Ursus tibetanus?)*, Swinhoe, Proc. Zool. Soc. 1862, p. 351.

*Ursus formosanus*, Swinhoe, *ibid.* 1863, p. 380.

*Hab.* Formosa, highest mountains in the interior (*Swinhoe*)

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(called "Tinheuny" by the Chinese). A flat skin in the British Museum.

This differs from the Japan Bear in the white marks on the chest being large and distinct.

Bears are often tamed by the Chinese, and taught to dance and play tricks, as in India and Europe.

#### 7. URSUS INORNATUS.

*Ursus inornatus*, Pucheran, Rev. Mag. Zool. viii. 392; Arch. für Naturg. 1856, p. 43.

*Hab.* Ceylon. A young specimen.

b. Long-clawed American Bears. *The fur shaggy. Front claws much longer than the hinder one, broadly depressed, whitish. The palate narrow and contracted behind. Ears small. Hind feet elongate.* North America. DANIS.

*Grizzly American Bears (Danis)*, Gray, Ann. of Philosophy, 1825.

The skull of these Bears more resembles that of the European Bears than that of the short-footed, smooth-haired American Bears; for De Blainville calls the Pacific Grizzly Bear only a variety of *Ursus arctos*.

#### 8. URSUS (DANIS) CINEREUS.

B.M.

Fur very long, very dense, longer on the neck and occiput, dark brown, with ashy tips.

*Ursus cinereus*, Desm. Mamm. 165.

*U. griseus*, Desm. N. Dict. H. N. xxiv. 266.

*U. horribilis*, Ord, in Isis, 1819, p. 107; Say, Long's Exped.; Baird, Mamm. N. A. t. 41, 42 (skull).

*U. ferox*, I. Geoff. Dict. Class. H. N. xii. 521; Lewis & Clerk, Travels, i.; Fischer, Syn. Mamm. 144; Prinz Max. von Wied. Acad. Nat. Cur. xxvi. 33, 1857.

*U. arctos*, var., Middendorf, Sibirische Reise, ii. 4. p. 54, 1853.

*Ours de Californie (Ursus arctos ferox)*, De Blainv. Ostéogr. Ursus, t. 2 (skull), t. 6 (skull, old and young).

*Danis ferox*, Gray, Ann. Philos. lv.

*U. candescens*, H. Smith.

*L'Ours noir d'Amérique*, Cuvier, Oss. Foss. iv. 332, t. 23. f. 1, 2.

*Hab.* North America, California (*Douglas*).

"Size very large. Tail shorter than ears. Hair coarse, darkest near the base, with light tips; an erect mane between the shoulders. Feet very large; fore claws twice as long as the hinder ones. A dark dorsal stripe from occiput to tail, and another on each side along the flanks, obscured and nearly concealed by the light tips; interval between the stripes lighter; all the hairs on the body brownish yellow or hoary at tips; region around ears dusky; legs nearly black; muzzle pale, with a dark dorsal stripe."—*Baird, Mamm. N. A., San Francisco.*

	Length of upper tubercular.		Length of skull.		Width of skull.		Width of nose.		Width at orbits.		Length of palate.		Width of palate.		Length of nose.		Height of orbit.		
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	
1137 a. ....	1	5 $\frac{1}{2}$	14	08	6	3	2	3	6 $\frac{1}{2}$	7	9	2	3 $\frac{1}{2}$	4	6	2	0		
1137 b. Douglas's .....	1	5 $\frac{1}{2}$	15	08	3	3	1	3	7	7	8	1	11 $\frac{3}{4}$	4	9	2	3		

The two skulls vary considerably: the first is much broader, the palate wider, the nose shorter, and the orbit smaller, rounder; the second, from the Rocky Mountains, is narrower, the nose longer, the palate much wider, and the orbit much higher and more oblong.

The lower jaw with a straight lower edge, very slightly bent up behind the chin, and scarcely bent up at the hinder end. The outer lower cutting-teeth larger, and lobed on the outer side. The outer upper cutting-teeth larger, with a lobe on the inner side. The two front upper false grinders very small, far apart; the third larger, three-lobed.

There are two skulls in the Museum collection; they both agree in being narrower than the skull of *U. arctos* of Europe, in having a much larger hinder tubercular grinder, and in having a narrow opening to the hinder nostrils, which are oval at the front edge; the size of the opening differs considerably in the two specimens, being smaller and narrower in the oldest one. Nasal bones elongate, nearly to a line in middle of orbit. Length of hinder grinder in all long, about 1 $\frac{1}{2}$  inch.

The skull collected by Mr. Douglas and sent to the Zoological Society is 14 $\frac{1}{2}$  inches long, from front teeth to end of condyle; palate 7 $\frac{1}{2}$  inches long; width at back of zygoma 8 $\frac{1}{2}$  inches; width of nose, at aperture of artery, 3 $\frac{1}{6}$  inches; length of last grinder 1 $\frac{1}{2}$  inch; length of suture of lower jaw 3 $\frac{1}{4}$ . The hinder nostrils wide, 1 $\frac{1}{4}$  inch in widest part, rather narrower behind; length 3 inches.

The skull of an old specimen that lived many years in the Tower and in the Zoological Gardens, with some of the grinders and the canines worn down.—The internal nostril is narrow, rather wider behind than in front; the front edge ovate. Length of the skull below, from front cutting-teeth to end of condyle, 14 inches, of palate 7 $\frac{1}{2}$  inches; width at back of zygoma 10 inches, of nose, at hole of artery, 3 $\frac{1}{3}$  inches; length of suture of lower jaw 3 $\frac{1}{2}$  inches; width of nose-aperture 2 inches, rather higher than wide.

#### 9. URSUS (DANIS) HORRIACEUS.

*Ursus arctos?* (*Barren-ground Bear*), Richardson, *Fauna Boreali-Americana* (see Baird, *Mamm. N. A.* 229).

*U. horribilis*, var. *horriaceus*, Baird, *N. A. Mamm.* t. 80 (skull); *Rep. Mexican Boundary.*

*Hab.* New Mexico, Sonora.

This Bear, according to Sir John Richardson, exhibits peculiarities not found in the Grizzly Bear of the Pacific Coast.

*Ursus horribilis*, var. *horriaceus*, Baird, *Mexican Mamm.* 24

(*Sonora Grizzly Bear*) is less than the Grizzly Bear of the Pacific coast. Head very broad. Ears and tail nearly equal. Fore claws twice as long as the hinder ones. General colour dark brownish, with the tips of the hairs much lighter, of a dirty amber-colour; no distinct indications of dark stripes on back and sides.

*Hab.* Los Nogales (*Dr. Kennerly*).

c. Short-clawed American Bears. *Fur short, uniform. Front claws moderate, not much longer than the hind ones. Hind feet short. Upper tubercular moderately long, narrowed behind.* EUARCTOS.

*American Bear*, Gray, Ann. Phil. 1825.

10. URSUS (EUARCTOS) AMERICANUS.

B.M.

Fur entirely uniform throughout, either black or brownish; hair darkest towards the tips; nose brown; feet moderate; fore claws not twice as long as the hinder.

*Ursus americanus*, Pallas, Spic. Zool.; Schreb. Säugeth. t. 141. f. B.

*Ours (noir) d'Amérique (U. americanus)*, Cuvier, Ménag. Mus.; Ann. Mus. vii. 333, t. 18. f. 7, t. 21. f. 1-3; Oss. Foss. v. 318, t. 22. f. 5, 6, t. 23. f. 1; F. Cuvier, Mamm. Lithogr. t.; Fischer, Syn. Mamm. 145; Baird, Mamm. N. A. 225, t. 43. f. 10-13 (skull); Gray, Cat. Mamm. B. M. 72; De Blainv. Ostéogr. Ursus, 20. t. 5 (skull of adult and young), t. 11 (bones), t. 12 (teeth); P. Z. S. 1859, p. 477; 1860, p. 130, 180, 417.

*U. niger americanus*, Schinz, Syn. Mamm. 301.

*Ours gulaire*, I. Geoff. Mus. Paris.

*Black Bear*, Penn.

*Hab.* North America.

Mr. Bartlett notices the teats of two hybrids, believed to be from a male *Ursus americanus* and a female *U. arctos* (P. Z. S. 1860, p. 130).

The series of skulls of North-American Bears in the British Museum offers a very considerable amount of variation: in some the nose and forehead are nearly on the same plane; that is to say, there is very little depression in front of the orbits; but in others the depression is more decided; and in the skull of the Cinnamon Bear it is as great as in the usual form of the European Bears. The greater number of the skulls have the forehead and front of the crown more or less convex, sometimes decidedly so; but in a few the forehead is nearly flat.

	Length of upper tubercular grinder.		Length of skull.		Width of skull.		Width of nose.		Width at orbits.		Length of palate.		Width of palate.		Length of nose.		Height of orbit.	
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.
217 c. ....	1	1	10	6	6	9	2	5	2	11	5	8	1	7	3	3	1	5
217 k. ....	0	11	10	6	6	5	2	3	2	7	5	6	1	8	3	7	1	1
217 l. ....	1	0	9	3	5	4	2	0	2	1	4	11	1	6	3	0	1	3



The specimens *k* and *l* have the opening of the vessel of the palate in front of the front edge of the upper tubercular tooth. In a skull (*i*) in the British Museum it is opposite the middle of the tubercular on one side, and opposite the front edge on the other. The specimen *k* is from the western slope of the Rocky Mountains (*Lord*).

The skull elongate. Nose rather produced, compressed on the sides, rounded above; nasal bones long, of the same length as the upper part of the maxillæ, and extending to a line level with the middle of the orbits. Forehead convex, rounded, rather shelving on the sides. The nose-aperture higher than broad, oblique. Orbits small, oblong, longer than high. The zygomatic arch moderately strong. The palate rather contracted at the line of the last tooth, and more so behind towards the inner nasal opening, which is rather narrow, with a transverse front edge, and with the sides considerably longer than the width of the front edge. The tubercular grinder large, broad, considerably longer than the flesh-tooth. The outer cutting-teeth largest, lobed. The front false grinders small, subequal, far apart.

There is an adult skull in the Museum, received from the Zoological Society as the skull of a Bear said to have come from North America. It is very like the other specimens of *U. americanus*; but the nasal bones are shorter, and do not extend so far up the nose as in the other specimens, stopping nearly a third of an inch short of the upper hinder angle of the maxillary bones. The palate also is rather more concave. The length of the skull is 11 inches, of the palate  $5\frac{3}{4}$  inches, of tubercular grinder  $1\frac{1}{2}$  inch; width of zygoma  $6\frac{1}{8}$ , of nose  $2\frac{1}{2}$ , of forehead between the orbits  $2\frac{5}{2}$ .

#### 11. URSUS (EUARCTOS) CINNAMOMEUS?

B.M.

*Ursus luteolus*, H. Smith, Griffith's, A. K.

*U. americanus cinnamomeus*?, Baird, Mamm. N. A. t. 79 (skull).

*Small Brown Bear from the copper-mines of New Mexico*, Baird, Mamm. N. A. 217, 228.

*U. cinnamomeus*, Baird, Mex. Mamm. 29.

*U. americanus cinnamomeus*, Bachm. N. A. Journ. ii. t. 127, 1853?

“Size equal to or less than that of the Black Bear. Colour varies in different shades of brown, very rarely black. Skull broader than in the common Black Bear” (*Baird*).

The skull of an adult Cinnamon Bear in the Museum agrees with the skulls of the other North-American Bears in most particulars; but the orbit is oblong, oblique, much narrower from before backwards than in the common *U. americanus*, and the tubercular grinders longer and broader. The palate is concave, and the hinder aperture of the nose with an arched front edge. The nasals are broad, extending up as far as the maxilla, and in a line with the middle of the orbits. The lower jaw is not so high. The length of the skull  $9\frac{3}{4}$  inches, of the palate  $5\frac{3}{4}$  inches, of the tubercular grinder  $1\frac{0}{2}$  inch; width at zygoma  $6\frac{1}{2}$  inches, of nose  $2\frac{1}{2}$  inches, of forehead between the eyes  $2\frac{1}{2}$  inches.

*U. amblyceps*, Baird, MS.

“The skull shows conclusively a different species from the American Bear of the eastern States” (Baird, *l. c.* 217).

### 3. MYRMARCTOS. Ant-Bear.

Head elongate, narrow. Lips moderately extensile. The skull flat above, the nose, forehead, and front of the crown forming a regular shelving line; brain-case compressed. The nose moderate, flat above, compressed on the sides. The forehead narrow; the space between the orbits narrower than the nose. The last grinder moderate, longer than the flesh-tooth. Palate deeply concave; the hinder nasal aperture large, broad; the sides longer than the width of the front edge. Lower jaw large, elongate.

The Ant-Bears seem to have been long known, but somehow most unaccountably overlooked. They are evidently very distinct from the carrion or omnivorous Bears (*Ursus*).

Worm (Mus. 318) mentions three Bears as inhabiting Norway: 1. the Brown Bear, which is called *Græssdjur* (Herb-Bear), the largest and most dangerous, living principally on vegetables; 2. the Black Bear or *Ildgiesdjur*, the most carnivorous, attacking horses; 3. the Ant-Bear or *Myrebjorn*, the smallest, but still dangerous (see Cuvier, *Oss. Foss.* iv. 313).

Pallas, in ‘*Zoographia Rosso-Asiatica*,’ observes, “*Rossi distinctionem faciunt Ursorum inter formicarios (Muraveniki) et cadaverivoros (Sterveniki)*, sed nullo solido argumento: variant solummodo colore vel nigriore, vel e fusco magis rufescente; et magis minusve iracundi et crudeles fiunt anni tempore, ætate et alimenti copia vel inopia.”

Dr. Edward Eversmann, in the ‘*Bulletin de la Soc. Imp. des Nat. de Moscou*’ for 1840, p. 8, says that in the east of Moscow there are two kinds of Bear, one the *Aasbüren (Sterveniki)*, or Carrion-Bears, and the other the *Ameisenbüren (Muraveniki)*, or Ant-Bears; and he gives the characters which distinguish them, and figures the skulls of the two species. He states, “In the Ant-eating Bear the skull is more elegantly formed. The anterior level of the frontal bone forms a plane with the nasal bone; the forehead also does not stand forwards, and forms no depression, but is flat. The molar teeth are narrower and longer; the zygomatic arch is thinner and more slender; altogether the entire skull is proportionally longer, not so high, and not so robust as in the carrion-eater (*Ursus arctos*).”

He thus defines them:—

1. *U. cadaverinus* (= *U. arctos*, L.). Fronte supra oculos convexa, rostro abrupte attenuato brevi; vellere fusco, regione humerorum colloque pallidioribus; pedibus nigris (t. 1. f. 1, skull). Called “*Sterveniki*.”

2. *U. formicarius (U. longirostris)*. Fronte plana, modice in rostrum attenuata; vellere flavicanti-fusco, pilis apice flavidis ceterum fuscis; pedibus nigris (t. 1. f. 2, skull). Called “*Muraveniki*.”

## MYRMARCTOS EVERSMANNI.

B.M.

*Myrebiorn*, Worm, Mus. 308.*Muraveniki*, Pallas, Zoogr. Rosso-Asiat.*Ursus formicarius* (*U. longirostris*), Eversmann, Bull. Soc. Imp. Nat. Mosc. 1840, 8. t. 1. f. 2 (skull); Bonap. Mamm. Eur. 11.*Ursus arctos*, var. *beringiana* (partly), Middendorf, Sib. Reise, i. 53, t. 1. f. 5, 6 (skull).? Young. Var. white-collared. *Ursus norvegicus*, F. Cuv. Mamm. Lithogr. vii. t. ; Fischer, Syn. Mamm. 142.? *Ours brun de Norvège*, De Blainv. Ostéogr. t. 7 (skull of young).*Hab.* Norway (skeleton, B.M.).

	Length of upper tubercular.		Length of skull.		Width of skull.		Width of nose.		Width at orbits.		Length of palate.		Width of palate.		Length of nose.		Height of orbit.	
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.
218c. Brandt .....	1	11½	11	36	1.	3	2	6	2	5	10	1	9	3	9	1	7	

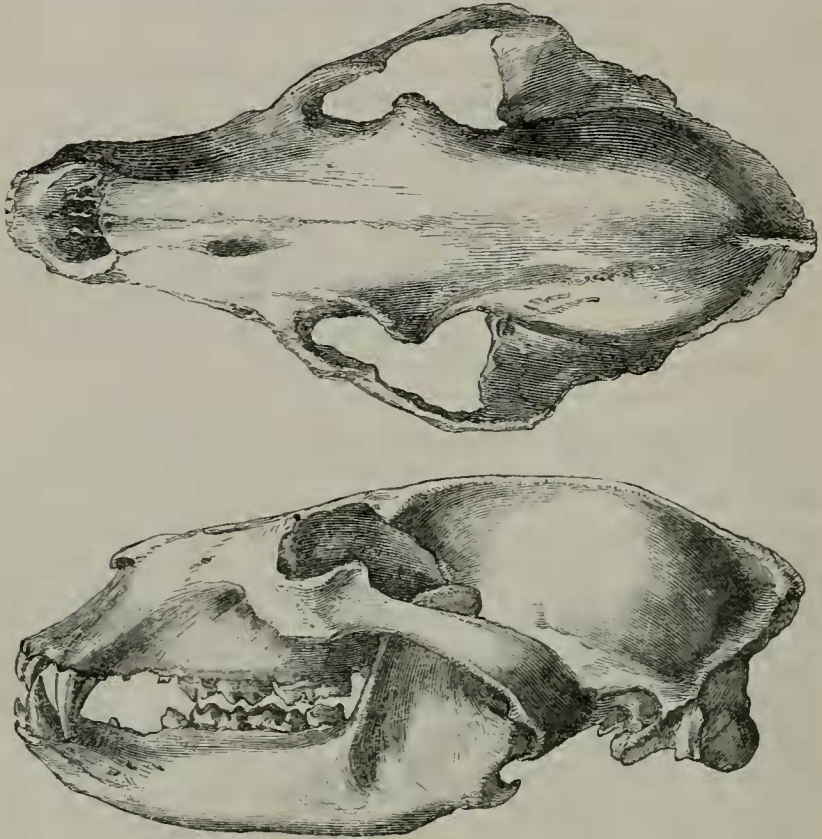
Skull of nearly adult Bear from Norway. The palate is very concave, especially in the middle of its length, in a line with the first large false molar; the hinder edge rather concave, and smoothed behind, near the front edge of the internal nostrils, which is thin and regularly arched; the aperture of the hinder nostril large, rather broader in front than behind. The hinder tubercular grinder rather short. Forehead quite flat, produced behind to a line over the ears, not convex above the orbits, narrow between the orbits. Nose broad, flat at tip; nasal bones only extending to rather behind the front edge of the orbit, not nearly so far as in *U. arctos* of Sweden. The aperture for the passage of the artery to the palate in a line with the front edge of the hinder grinder. Length of the skull below  $11\frac{1}{4}$  inches, of palate  $5\frac{3}{4}$  inches; width at condyle of lower jaw  $6\frac{1}{2}$  inches, of nose behind, at aperture  $2\frac{2}{3}$ , at canines  $2\frac{1}{3}$ , of nose-aperture  $1\frac{2}{3}$  inch, between orbits  $2\frac{1}{4}$  inch, at back of orbits  $3\frac{1}{2}$  inches.

I think that the skeleton which is in the British Museum, which was received from Mr. Brandt of Hamburg as that of a Bear from Norway, and named *U. norvegicus*, is the *Myrebiorn* or Ant-Bear of Worm.

I am not so sure that it is the Ant-Bear of Eastern Siberia, figured by Eversmann as *U. formicarius*, as the figure of the skull does not quite agree with the Museum specimen: the flat plane of the forehead is not carried so far back on the crown as in the skull here described. If it is not the same, the *U. formicarius* of Siberia must be, from the description, a nearly allied species of the same genus.

The figure of the skull of the young Brown Bear from Norway, figured by De Blainville (Ostéogr. t. 7), is probably a young skull of this species: it differs from the figures of the skull of the other European Bears in the same work, in the forehead not being separated

from the nose by any frontal cross line. De Blainville does not give an account of its origin, but, by mistake, says it is the same as the one figured by Cuvier (Oss. Foss. iv. t. 22); but no skull from Norway is figured in that work. It is probably the skull of the animal figured by M. F. Cuvier.



Skull of *Myrmarcos eversmanni*, from Norway.

#### 4. HELARCTOS.

Head short, subglobose. Nose short, forming with the forehead and crown an arched outline. Lips rather external, very mobile. Front claw very long, strongly arched. Fur short, rigid. Nose of skull very short, as broad as long, forming a line with the forehead. Nasal bones short. Front false grinders crowded, large. Upper hinder grinder broad, scarcely larger than the flesh-tooth; the outer upper cutting-teeth much the largest; the first false grinder large, second very small, third two-lobed.

*Hab.* Southern Asia, South America, and Europe.

*Asiatic Bears (Prochilus)* (partly), Gray, Ann. Phil. 1825.

*Helarctos*, Horsfield, Zool. Journ. ii. 221, 1825; Féruss. Bull. Sci. N. vi. 396, 1825; Isis, 1830, p. 1023.



a. *Australasian. Claws compressed, much curved.*

## 1. HELARCTOS MALAYANUS. The Bruang. B.M.

Black; nose ferruginous; chest with a semilunar or semioval yellow patch; claws very long.

*Ursus malayanus*, Raffles, Linn. Trans. xiii. 254; Horsf. Java, t. ; F. Cuvier, Mamm. Lithogr. t. ; Cuvier, Oss. Foss. iv. 322. t. 22. f. 3, 4; De Blainv. Ostéogr. Ursus, 25, t. 8 (skull), t. 12 (teeth); Fischer, Syn. Mamm. 144.

*Prochilus malayanus*, Gray, Ann. Phil. 1825, p. 61.

*Helarctos malayanus*, Horsf. Zool. Journ. ii. 221, t. 7; Gray, Cat. Mamm. B. M. 73.

*H. eurypilus*, Horsf. Zool. Journ. ii. 221, t. 7; Gray, Cat. Mamm. B. M. 73.

*Malay Bear*, Griffith, A. K. t. .

*Hab.* Malayan islands—Sumatra, Borneo, Java; Malay peninsula. Called '*Bruang*' by Malays.

Skulls.	Length of tubercular grinder.		Length of skull.		Width of skull.		Width of nose.		Width at orbits.		Length of palate.		Width of palate.		Length of nose.		Height of orbit.	
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.
1140 a. <i>E. (H.) eurypilus</i> ...	0	10	8	3	6	5	2	4	2	5	4	6	1	10	2	7	1	3
1140 b. Borneo (younger).....	0	9	7	6	6	3	2	4	2	0	4	0	1	6	2	3	1	0
959 a. <i>H. malayanus</i> (very old)	0	8	8	7	7	0	2	8	2	9	4	4	1	8	2	6	1	1

The skull of a very old animal, labelled *U. malayanus*, received from the Zoological Society's Museum, has a much shorter tubercular grinder than any of the others in the Museum, which are called *U. eurypilus*; but the teeth of the specimen rather differ in size, and the figure that Cuvier and De Blainville give of the skull of the specimen of *U. malayanus* which we sent to Paris by Dr. Leach, from the species that was first described, appears to be intermediate in size and form between the skulls in the British Museum. But perhaps the Bornean specimen may be found to have a rather larger tubercular grinder, which is more contracted behind than in the Javan specimens.

Skull short, swollen. Nose very short, broad; end as broad as the forehead between the orbits; nose-opening elongate, higher than broad. Orbits small, ovate. Forehead broad, convex, arched on the sides and extended far back between the temporal muscles. The palate broad, short, concave, with parallel sides, contracted behind; the opening of the hinder nostrils broad, equal, the sides about as long as the width of the front edge. The last tubercular grinder moderate, broad, as broad and rather longer than the flesh-tooth, obliquely truncated on the hinder half of the outer margin. The side cutting-teeth larger-lobed. False grinders close together, forming a crowded series: the first oblong, longer; the second small, on the outer side of the series; the third longer, three-lobed. The lower jaw

short, stout, with a rather long chin and straight lower edge. The nasals are short, and broad at the end, reaching to a line level with the middle of the orbit.

b. *European. Claws — ?*

2. HELARCTOS EURYRHINUS.

Fur dark brown.

*Ursus euryrhinus*, Nilsson, Scand. Däggdjur, 212.

*Hab.* Hungary (*Mus. Acad. Lund.*).

Professor Nilsson notices a species of Bear (which he saw in the Academical Museum at Lund, said to have come from Hungary; the fur is coloured like *U. arctos*) under the name of *U. euryrhinus* (Scand. Däggdjur, p. 212), which is thus characterized:—

“The length of the nose (reckoned from the foramen infraorbitale to the anterior margin of the intermaxillary bones at the suture) is equal to the breadth of the nose, taken either at the foramen infraorbitale or over the roots of the canine teeth.”

c. *African. Claws straight.*

3. HELARCTOS? CROWTHERI.

Fur long, shaggy, blackish brown, beneath orange-rufous; nose very short, acuminate, black; toes short; claws stout.

*Ursus arctos*, Shaw, Barbary.

*Ours en Afrique*, Cuvier, Oss. Foss. iv. 325.

*Bear of Mount Atlas*, Blyth, P. Z. S. 1841, p. 65.; Wieg. Arch. 1842, p. 27.

*Ursus crowtheri*, Schinz, Syn. Mamm. 302.

*Hab.* North-west Africa: on mountains, Morocco; Tetuan.

“Adult female, inferior in size to that of the American Black Bear; more robustly formed; the face much shorter and broader, though the muzzle is pointed; toes and claws remarkably short; the claws particularly stout. Hair black (rather, brownish black) and shaggy; the under parts of an orange-rufous colour; muzzle black. Feeds on roots, acorns, and fruit; does not climb with facility, and is stated to be very different-looking from any other Bear.”

d. *American. Front claws —.*

4. HELARCTOS ORNATUS.

B.M.

Fur black; the nose short, and a semicircle over each eye fulvous; jaws, cheeks, throat, and chest white. Length  $3\frac{1}{2}$  feet.

“Upper hinder grinder broad, not much longer than the flesh-tooth, suddenly contracted behind.”

*Bear*, Condamine, Voy. Pérou.

*Ursus ornatus*, F. Cuvier, Mamm. Lithogr. t.; Proc. Zool. Soc. 1833, p. 114; Fischer, Syn. Mamm. 143.

*Ours des Cordillères* (*U. ornatus*), De Blainv. Ostéogr. Ursus, t. 4 (skeleton), t. 8 (skull), t. 12 (teeth) (of F. Cuvier's specimen).

*Hab.* South America, Cordilleras (*Cat. Mus. Zool. Soc.* ii. 184).

M. de Blainville describes the skull as being so like that of *H. malayanus* that at first he thought they were the same; but on more careful comparison, he found the bones of the nose rather broader proportionately, the mastoid processes rather unlike and nearer together, the pterygoid processes rather more rounded and recurved, the palatine edge less deeply cut in trefoil, the zygomatic arches broader and more arched, &c.

The other parts of the skeleton present more essential differences (De Blainv. Ostéogr. p. 26).

C. Honey-Bears. *Soles of the feet bald, callous; the underside of the base of the toes bald. Cutting-teeth 4/6. Nose subcylindrical, truncated; nostrils large, covered with a large upper flap. Lips very extensile. Front of the palate of the skull bent up.*

#### 5. MELURUSUS.

Head elongate. Nose produced, subcylindrical, truncated. Lips very large, extensile, and mobile. Nostril large, with a larger upper lid. Forehead convex, arched. Ears tufted, exposed. Fur very long, flaccid, with a pendant cervical mane. Claws elongate.

Skull elongated. Nose longer than broad. Forehead rather convex, separated from the nose by a cross line. Palate broad, concave, flat, and bent up in front. Chin high, regularly produced below. Two central upper cutting-teeth abortive.

*Asiatic Bears* (*Prochilus*) (partly), Gray, Ann. Phil. 1825.

"They never have more than four incisors in the upper jaw. This is the case even in the crania which have the milk-teeth just giving way to the adult ones. They feed on the black ant, termites, beetles, fruits, and particularly the seeds of *Cassia fistula*, of the date-tree, and honey. When pursued, they carry their cubs on their backs, even when chased for nearly three miles. They are said to have lived in captivity for forty years."—*Elliot, Madr. Journ. of Literature and Science*, 1840, p. 9.

MELURUSUS LABIATUS. The Aswail.

B.M.

Fur very long, flaccid, nape maned; chest with a white cross band; ears very hairy, prominent.

*Ursus labiatus*, Desm. Mamm. 166; Fischer, Syn. Mamm. 144; Hodgson, J. A. S. B. i. 340, x. 910; P. Z. S. 1834, p. 9; Calcutta J. N. H. iv. 288; Tickell, Calc. Journ. N. H. ii. t. 7; De Blainv. Bull. Soc. Philom. 1817, p. 74; Ostéogr. Ursus, 23, t. 8 (skull), t. 11 (bones); Cuvier, Oss. Foss. iv. 320, t. 23. f. 6.

*U. longirostris*, Tiedem. Abhandl. 1820, p. 4 (not Eversmann); Reichenbach, Nov. Act. Nat. Cur. xiii. 323, t. 15.

*Bradypus ursinus*, Shaw, Zool. i. 159, t. 47.

*B. ursiformis*, Shaw, Nat. Misc. i. t. 58; Horsf. Cat. Mus. E. I. Comp. 124; Cat. Hodgson Coll. B. M. 13; Wolf, Abbild. ii. 18, t. 7.

*Melursus lybius*, Meyer; Gray, Cat. Mamm. B. M. 73.

*Prochilus ursinus*, Illiger, Prodr.

*P. labiatus*, Gray, Ann. Philos. 1825, p. 60.

*Slow Bear*, Hamilton, Mysore, ii. 197; Bewick, Quad.

*Ursiform Sloth*, Pennant, Quad. ii. 243, t. 92.

*Petre Bear*, Canton, Figures of Animals, t.

*Ours Jongleur*, F. Cuv. Mamm. Lithog. t.; Cuvier, Oss. Foss. iv. 320, t. 23. f. 6; Delam  therie, Journ. de Phys. 1792, t. 136. f. 1.

*Hab.* India, plains (*Sykes*); Southern Mahratta country (*Elliot*); Nepaul (*Hodgson*); Benares (*Pennant*); Dukhun.

	Length of upper tubercular.	Length of skull.		Width of skull.		Width of nose.		Width at orbits.		Length of palate.		Width of palate.		Length of nose.		Height of orbit.	
		in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.
220 <i>h.</i> .....	0 8 $\frac{1}{2}$	11	6 7	3	2	6	2	6	6	4 $\frac{1}{2}$	2	5	3	6	1	8	
220 <i>b.</i> .....	lost.	12	0 7	3	2	6	2	6 $\frac{1}{2}$	6	6	2	2	3	6	1	7	
220 <i>l.</i> Very old .	0 10	12	6 8	3	2	9 $\frac{1}{2}$	2	0	6	9	2	5	4	0	1	8	
220 <i>c.</i> .....	lost.	12	0 7	10	2	8	2	9 $\frac{1}{2}$	6	6	2	4	3	8	1	10	
220 <i>f.</i> .....	{ 0 9 r. 0 10 $\frac{1}{2}$ l. }	12	0 7	7	2	9	2	10 $\frac{1}{2}$	6	8	2	6	3	9	1	8	
220 <i>e.</i> .....	0 10	11	0 7	3 $\frac{1}{2}$	2	6	2	7	6	3							
220 <i>d.</i> .....	0 9	11	0 6	10	2	6 $\frac{1}{2}$	2	6 $\frac{1}{2}$	6	3							
220 <i>k.</i> .....	0 8 $\frac{3}{4}$	12	0 7	0	2	9 $\frac{1}{2}$	2	7	6	7							

Skull:—Nose broad, rather flattened above, rather wider than the forehead between the orbits; nasal opening broader than high. Forehead rounded, regularly sloping down before and behind. Orbits oblong-ovate. The chin very long, sloping; the lower edge of lower jaw straight. The upper cutting-teeth four; the inner ones absorbed; the outer on each side larger. The last upper grinder oblong, almost as long as and narrower than the upper flesh-tooth. The palate broad, concave, bent up in front of the canine, broader behind, especially in the line of the hinder grinder, rather contracted behind towards the hinder aperture of the nostrils. The nose-aperture broad, with a thin transverse edge; the sides not quite as long as the width of the aperture. The zygomatic arches most prominent at the hinder end, rather in front of a line with the condyles.

*b.* Tail elongate, hairy, black-ringed. Body moderate. Limbs moderate. Teeth 40.

*Procyonina*, Gray, Cat. Mamm. B. M. 74.



## Tribe 2. NASUINA.

*Nose elongated, produced, truncated; the underside rounded, rather bald, without any central longitudinal groove*

## 6. NASUA.

*Nasua*, Storr.

*Coati*, Lacépède.

Head elongate, tapering. Nose elongate, produced; underside rounded, without any groove. Nostrils in front of the muffle, and reaching only halfway along its sides; upper surface of muffle twice as long as broad, and ending forwards in a cartilaginous snout (*Baird*). Ears short, rounded. Toes 5/5. Claws strong, acute. Tail elongate.

Skull elongate. Nose produced, compressed. Teeth 40. Cutting-teeth moderate; outer ones elongate, conical; four central upper in an arched line, rather in front of the lateral teeth; lower shelving out in front. Canines large; the lower strong, sharp-edged behind; the upper compressed, conical, and bent out at the ends. Grinders  $\frac{6-6}{6-6}$ ; the three front conical, compressed; the fourth like the flesh-tooth. The tubercular triangular, similar to the flesh-tooth. Lower jaw without any prominent angle behind.

## 1. NASUA RUFA.

B.M.

Fur fulvous; back darker; sides of nose and head ashy; tail fulvous and black-ringed.

*Viverra nasua*, Linn. S. N. i. 64; Schreb. Säugeth. t. 118.

*Ursus nasua*, Cuvier, Tab. Elém. 113, 1798.

*Nasua rufa*, Desm. Mamm. 170; Gray, Cat. Mamm. B. M. 74.

*N. socialis*, var., Pr. Max. Beitr. ii. 283.

*N. socialis* or *N. rufa*, Fischer, Syn. Mamm. 148.

*Coatimonde*, Perr. Anim. ii. 15, t. 37; Shaw, Zool. i. 385.

*Coati noirâtre*, Buffon, H. N.

*Coati roux*, Cuvier, Règ. An. i. 144; F. Cuvier, Mamm. Lithogr. t.

*Brazilian Weezel*, Penn. Syn. 229, t. 22. f. 1.

*Coati*, Marcgr. Brazil, 228.

*Myrmecophaga annulata*, Desm. Mamm., from Krusenstern's Voy. t.; Griffith, A. K. t. (figure altered).

*M. striata*, Shaw, Zool. i. 51, 1786.

*Tamandua* —, Buffon, H. N. Supp. iii. t. 56.

Mr. Turner (P. Z. S. 1851, p. 218) professes to have rediscovered the fact (though it is stated in the 'Catalogue of the Mammalia in the British Museum,' p. 74, 1843) that Krusenstern's *M. annulata* is only a *Coatimondi*; but he is puzzled to explain the figure in Griffith's 'Animal Kingdom.' This figure is engraved from a drawing of Major Hamilton Smith's, no doubt copied from Krusenstern's figure, but altered and improved, as was his habit when making his very large collection of drawings—a bad habit, that has rendered them of comparatively small value for scientific purposes, as it is impossible to determine whether they are from a figure or a specimen.

## 2. NASUA NARICA.

B.M.

Fur blackish brown, beneath yellowish; head ashy; tail black and yellow, obscurely ringed. The sides of the nose are sometimes marked with a black and white streak.

*Viverra narica*, Linn. S. N. i. 64; Schreb. Säugeth. t. 119.

*Ursus narica*, Cuvier, Tab. Elém. 113, 1798.

*Viverra quasie*, Gmelin, S. N. i. 87.

*Nasua quasie*, Geoff. Mus. Paris.

*N. leucorypha*, Tschudi, Arch. für Naturg.

? *N. nocturna*, Pr. Max. Beitr. ii. 298.

*N. obfuscata*, Illiger, Prodr.

*N. mondie*, Illiger, Prodr.

*N. fusca*, Desm. Mamm. 170; P. Z. S. 1859, p. 435; 1860, p. 243, 333.

? *N. solitaria*, Pr. Max. Beitr. ii. 299.

*N. socialis fusca*, Fischer, Syn. Mamm. 149.

*N. narica*, Gray, Cat. Mamm. B. M. 74.

*Coati brun*, Cuvier, Règne Anim. i. 444; F. Cuvier, Mamm. Lithogr. t.; Buffon, H. N. viii. t. 48, 49.

*Dusky Brazilian Weesel*, Penn. Syn. 330.

*Coati*, Azara, Essai, i. 334.

*Meles surinamensis*, Brisson, Règne Anim. 255.

*Narica*, Linn. Act. Holm. 1768, p. 152, t.

*Le Coati noirâtre*, Buffon, H. N. viii. t. 47.

*Hab.* Surinam (*J. H. Lance*).

I have examined with care a series of skulls which are said to have belonged to these two species, but have been unable to discover any characters by which the skulls belonging to one species can be distinguished from those belonging to the other. The skulls of animals of each species vary considerably in the breadth and flatness or convexity of the palate, in the form of the palate behind near the hinder nasal aperture, and in the length of the line occupied by the upper canines and grinders.

In most of the specimens of *N. rufa* and *N. narica* the upper canine teeth and the grinders occupy a line of  $1\frac{5}{6}$  inch; but in two large skulls, with very strong occipital ridges and expanded zygomatic arches, the teeth occupy a line rather more than 2 inches long; in another large skull, with the occipital ridge less developed, and the zygomatic arches less prominent, they occupy the same length: the skulls are each 5 inches long; and one is  $3\frac{1}{2}$ , the other  $3\frac{1}{4}$ , and the last 3 inches wide. But I can find no other characters to separate them, nor can I find any young specimens having similar characters.

If I had only two or three skulls, I might have perhaps seen differences which I might have regarded as distinctions; but when a series of some twenty or more are examined, it is impossible to define any distinction.

Skulls.	Length of skull.		Width of skull.		Length of nose.		Width of nose.		Length of palate.		Width of palate.		Length of tooth-line.	
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.
<i>N. narica.</i> 225 <i>g.</i> Aged .....	5	1	3	4	1	10	1	0	3	3	0	11	2	0
225 <i>h.</i> Aged .....	5	0	3	5	1	11½	1	0½	3	3	0	11	2	0½
225 <i>a.</i> Aged .....	5	0	3	0	1	11½	0	11	3	2½	0	9	2	1
225 <i>h.</i> Adult .....	4	9	2	9	1	9	1	0	3	0	0	10	1	10
225 <i>j.</i> .....	4	9	2	8	1	8	1	0	3	1	0	9	1	9½
225 <i>f.</i> Skull B.M. ...	4	6	2	5	1	8	0	11	3	11½	0	9	1	9
<i>N. rufa...</i> 224 <i>a.</i> Adult .....	4	8?	2	6	1	7	0	11	3	0	0	9½	1	10
224 <i>b.</i> .....	4	6	2	7	1	7½	1	0	2	11	0	11	1	9½
224 <i>c.</i> .....	8	8	2	6	1	8	0	9½	3	0	0	8½	1	10

## 3. NASUA OLIVACEA.

B.M.

Olive-brown, grizzled; hairs black-brown, with a yellowish sub-terminal ring; under fur black; face pale; orbits, legs, and feet blackish brown; chest yellowish grey; tail short, with black rings and a black tip.

*Nasua olivacea*, Gray, Cat. Mam. B. M. App. 195 (not described).  
*Hab.* Santa Fé de Bogota.

I do not know

1. *Nasua solitaria*, Pr. Max. Beitr. ii. 292.
2. *N. nocturna*, Pr. Max. Beitr. ii. 292, from Brazil.
3. *N. monticola*, Tschudi, Fauna Peruana, 102, t. 5, from Peru.

Are they distinct?

## Tribe 3. PROCYONINA.

*Nose short; underside flat, with a central longitudinal groove.*

## 7. PROCYON.

*Procyon*, Storr; G. Cuvier, 1798; De Blainv. Ostéogr. Subursus, t. 3.

*Lotor*, Tiedem.

Head broad, depressed. Ears small, ovate. Muzzle short, conical. Muffle large; under surface covered with hair, without any central groove. Nostril subhorizontal, on hinder edge of muffle. Body stout. Tail moderately long, black-ringed. Toes 5/5, front toe elongate. Soles bald, furrowed, but without pads. Claws falcate. Skull short; orbit incomplete, contracted above and below only. Teeth 40; canines sharp-edged; premolars 4/4, 4/4, three front small, conical; hinder set broad, like flesh-teeth; flesh-teeth 1/1, upper oblong, transverse; molars 1/1, 1/1, upper ovate, transverse.

"Prefers the vicinity of running water, where bushes are thick, or hollow trees, in which it makes its bed; when pursued, it takes immediately to the water, swimming with great rapidity and ease. The flesh is highly esteemed by the Mexicans (who call it *Tejou*) as an article of food. It throws itself on its back in a state of defence,

showing its teeth in a threatening manner; but I never heard it utter any cry."—*C. B. Kennerly*.

\* *Tail bushy, four or five rings; forehead of skull high, convex; brain-case moderate; palate much produced and narrow behind; grinders moderate.* *Procyon*.

1. *PROCYON LOTOR.* Raccoon.

B.M.

Tail reddish, with four or five black rings. Fur ashy, more or less black-washed; lower side, ears, and feet whitish; oblique streak under the eye blackish; face whitish, with a narrow streak across the forehead before the eyes, becoming broader on the cheeks; outer side of the limbs and feet palish.

*Ursus lotor*, Linn. S. N. i. 70, 1766; Schreb. Säugeth. t. 143; De Blainv. Ostéogr. Subursi, t. 3 (skeleton).

*Raccoon*, Lawson, Carolina, 121, fig.; Penn. Syn. 199; Shaw, Zool. i. 464.

*Raton*, Buffon, H. N. vii. 337, t. 43; Supp. iii. 215.

*Procyon lotor*, Storr, Prod. 1780; Desm. Mamm. 168; Fischer, Syn. Mamm. 147; Gray, Cat. Mamm. B. M. 74.

*Meles lotor*, Bodd. Elenchus. Anim. i. 80, 1784.

*Lotor vulgaris*, Tiedcm. Zool. i. 380.

*Procyon gularis*, H. Smith, Jard. Cab. Lib. xiii. 222, 1842.

*P. brachyurus*, Wieg. Arch. iii. 369; Schreb. Suppl. t. 143 C.

*P. obscurus*, Wieg. Arch. iii. 370; Schreb. Suppl. t. 142 D.

*Var. melanus*; nearly black.

*Var. albina*.

*Meles alba*, Brisson, Règne An. i. 255.

*Ursus meles alba*, Erxl. Syst. 164.

*Procyon nivea*, Gray, Mag. Nat. Hist. i. 580, 1837.

*Hab.* America: Mexico (*Capt. Lyon*).

General colour greyish white; the tips of the long hairs black, imparting this colour to the back; under fur black-brown; a large oblique black patch on the cheek, continuous with a paler one beneath the jaw; another behind the ears; end of the muzzle, except the upper line, together with the portion on the border of the cheek-patch, whitish; tail not tapering, with tip and four annules black, these as broad as the rusty-white interspaces: hind feet not exceeding 4 inches, above dirty whitish; fore feet not exceeding  $2\frac{1}{2}$  inches. Varies in being nearly black, with the markings obscured; sometimes more or less yellowish or white, with obsolete markings or none—a decided tendency to albinism (Baird, *l. c.* 201).

*Var. 1.* Feet black, rather large.

*Procyon hernandesii*, Wagner, Isis, xxix. 514, 1833; Wieg. Arch. iii. 367; Baird, Mamm. N. Amer. 215.

*Hab.* Mexico.

*Var. 2.* *Procyon hernandesii*, var. *mexicana*, Baird, Mamm. N. A. 215.



Var. 3. Yellowish; cheek-patch small.

*Procyon psora*, Gray, Ann. & Mag. N. H. 1842, p. 261; Voy. Sulphur, pl. 9 & 17; Cat. Mamm. B. M. 38; Baird, Mamm. N. A. 215; Wiegmann, Arch. 1848, p. 2.

*Raccoon*, Cook's Voyage?; Richardson, Beechey's Voy. 4, no. 10.

*Talyocoyth*, Hernand. Mex. 12, no. 37?

Hab. Sacramento. Called "Psora."

This species varies rather in the tint of its colours in the different parts of North America. It is very apt to become white, and is the *Procyon nivea* (Gray, Mag. N. Hist. 1837, p. 580) from Texas. Wagler, in 1831, described the Mexican variety, which sometimes has black feet, as *P. hernandesii* (Isis, xxix. 514); I described a specimen from California, with the tail injured, as *P. psora* (Ann. & Mag. N. H. 1842); and Wiegmann described two other varieties under the names of *P. brachyurus* and *P. obscurus* (Arch. iii. 369). Dr. Baird, in the 'Mammals of North America,' considers *P. hernandesii* as a species, and calls it the black-footed *Procyon*, including *P. psora*, which has feet as pale or paler than *P. lotor*.

The skulls vary considerably in the width and concavity of the palate; in some the width is half the length to the end of the tooth-line, in others less than half the length. In general there is only a single large suborbital perforation; but in specimen *d* there are two small well-separated pores.

Skulls.	Length of skull.		Length of palate.		Length of lower jaw.		Width of skull.		Width of palate.		Width of nose.		Length of nose.		Width of brain-case.	
	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.	in.	l.
<i>P. lotor.</i> 222 <i>b.</i> .....	4	6½	2	9	3	4½	3	2	1	0	1	3½	1	6	2	1½
222 <i>d.</i> .....	4	0	2	5	2	11	2	9	0	10	1	1	3	1	9	
222 <i>e.</i> .....	4	0	2	4½	2	11	2	9	0	9	1	0	1	2½	1	9½
222 <i>l.</i> Injured } (young) }	4	0	2	6	3	0	2	2	0	9	1	1½	1	4	1	9
<i>P. psora.</i> 223. Adult.....	4	7	2	10	3	5	3	3	0	11	1	3	1	6	2	1½

\*\* Tail slender, eight- or nine-ringed. Forehead of skull flat, in a line with the nose; brain-case swollen; palate only shortly produced, and broad behind; grinders large. Euprocyon.

## 2. PROCYON CANCRIVORA.

B.M.

Tail reddish, with eight or nine black rings. Fur ashy, blackish-washed; feet brownish, beneath whitish; face with a large black patch, extended on to the cheeks, and one side of the limbs black.

*Ursus cancrivorus*, Cuv. Tabl. Elém. 113, 1798.

*Procyon cancrivorus*, Illiger, Prod.; Fischer, Syn. Mamm.; Gray, Cat. Mamm. B. M. 74; De Blainv. Ostéogr. Subursi, t. 5 (skull); P. Z. S. 1859, p. 432.

*Raton crabier*, Buffon, H. N. Supp. vi. 236, t. 32.

Hab. South America: Demerara (*Mus. Z. S.*); Paraguay; Brazil.

Skull with one very large suborbital foramen. The palate concave. The grinders are longer, and occupy a longer line than they do in *P. lotor* and its varieties.

Skull.	Length of skull.	Length of palate.	Length of lower jaw.	Width of skull.	Width of palate.	Width of nose.	Length of nose.	Width of brain-case.
837 a. Adult; imperfect behind .....	in. 1. 4 9?	in. 1. 2 8	in. 1. 3 7	in. 1. 3 1/2	in. 1. 0 10 1/2	in. 1. 1 1	in. 1. 4 1/2	in. 1. 2 2 1/2

## Section II. DENDROPODA,

or Cat-footed Bears. *The feet moderate; toes short, webbed, covered with hair, arched; last joint bent up; claws compressed, short, acute, retractile. Head rounder.*

*Dendropoda*, Gray, P. Z. S. 1864, p. 506.

These animals climb trees, and defend themselves with all their four feet, lying on their backs.

### Tribe 4. CERCOLEPTINA.

*Tail elongate, subcylindrical, covered with shortish hairs, prehensile. Soles of the feet bald.*

*Cercoleptina*, Gray, Cat. Mamm. B. M.

### 8. CERCOLEPTES.

*Cercoleptes*, Illiger.  
*Kinkajou*, Lacépède.  
*Potos*, Cuvier.  
*Caudivolvulus*, Desm.

Head rounded. Nose short, acuminate. Ears oblong. Toes 5/5; soles naked. Claws short, sharp. Tail elongate, hairy, prehensile. Teats two, ventral.

Skull ovate. Nose short, shelving. Forehead arched. Teeth:—cutting 6/6, regular, lower rather shelving out; canines grooved; grinders 5/5, 5/3, two front conical, third like flesh-tooth; tubercular ovate, flat. The lower jaw thick, with a well-developed inferior angle. Brain ovate; case ventricose. Orbit incomplete; suborbital foramen large, single. Chin long, well marked.

Professor Owen has published some notes on the anatomy (see P. Z. S. 1835, p. 119).

### CERCOLEPTES CAUDIVOLVULUS.

B.M.

Fulvous.

*Viverra caudivolvulus*, Pallas, in Schreb. Säugeth. 453, t. 125 B.

*Ursus caudivolvulus*, Cuv. Tab. Elém. 113, 1798.

*Potos caudivolvulus*, Geoff. Mus. Paris; Desm. Mamm. 171.

*Caudivolvulus flavus*, Tiedem. Zool. i. 381.

*Cercoleptes megalotus*, Martin, P. Z. S. 1836, p. 83; Schinz, S. M. 311.

*C. brachyotus*, Martin, P. Z. S. 1836, p. 83; Schinz, S. M. 311.

*C. caudivolvulus*, Illiger, Prod. 127; Fischer, Syn. Mamm. 150; Gray, Cat. Mamm. B. M. 75; P. Z. S. 1848, p. 76.

*Lemur flavus*, Schreb. Säugeth. 145, t. 42 (fig. Penn.); De Blainv. Ostéogr. Subursi, t. 5 (skeleton), t. 7 (skull).

? *Lemur bicolor*, Penn.; Miller, Cim. Phys. t. (badly coloured).

*Yellow Maucacoco*, Penn. Syn. 138, t. 16. f. 2.

*Potto*, Vosmaer, Descrip. Amsterd. 1771, t.

*Poto*, Buffon, H. N., ed. Allam, Suppl. iv. 160, t. 66; Cuvier, Règne Anim. i. 144.

*Kinkajou*, Buffon, H. N. Suppl. iii. 245, t. 50, 51.

*Prehensile Weesel*, Shaw, Zool. i. 403.

The two species described by Mr. Martin only depended on the artifice of the preserver.

Skull, length  $3\frac{1}{2}$  inch; breadth 2 inches, of brain-base  $1\frac{7}{8}$  inch; length of palate  $1\frac{1}{2}$  inch; breadth of nose  $\frac{1}{2}$  inch, of palate  $8\frac{1}{2}$  lines; length of tooth-line 1 inch, of lower jaw 2 inches.

#### Tribe 5. AILURINA.

*Tail not longer than the body, subcylindrical, covered with long bushy hairs, not prehensile; soles of the feet covered with hair.*

*Ailurina*, Gray, Cat. Mamm. B. M.

#### 9. AILURUS.

*Ailurus*, F. Cuvier, Mamm. Lithogr.; Hodgson, Journ. Asiat. Soc. Bengal.

Head roundish, very hairy; nose acute, short; ears short, rounded, hairy; feet short; toes  $5/5$ ; claws acute; tail elongate, tufted.

Skull ovate; nose short; zygoma much spread out. Teeth 36; grinders squarish, many-tubercled. Lower jaw arched, rounded, very large.

Lives on trees, but breeds in holes of rocks, living in pairs or small families; feeds on fruit, roots, eggs, young birds and animals. Claws completely retractile, half sheathed.

"I can only report the frugivorous habits, gentle disposition, ursine arm, feline paw, profoundly cross-hinged yet grinding jaw, and purely triturative and almost ruminant molar of *Ailurus*; anus, perineum, and prepuce entirely free from glands or pores; scrotum none; tongue smooth; pupil round; feet enveloped in woolly socks, with leporine completeness."—*Hodgson*.

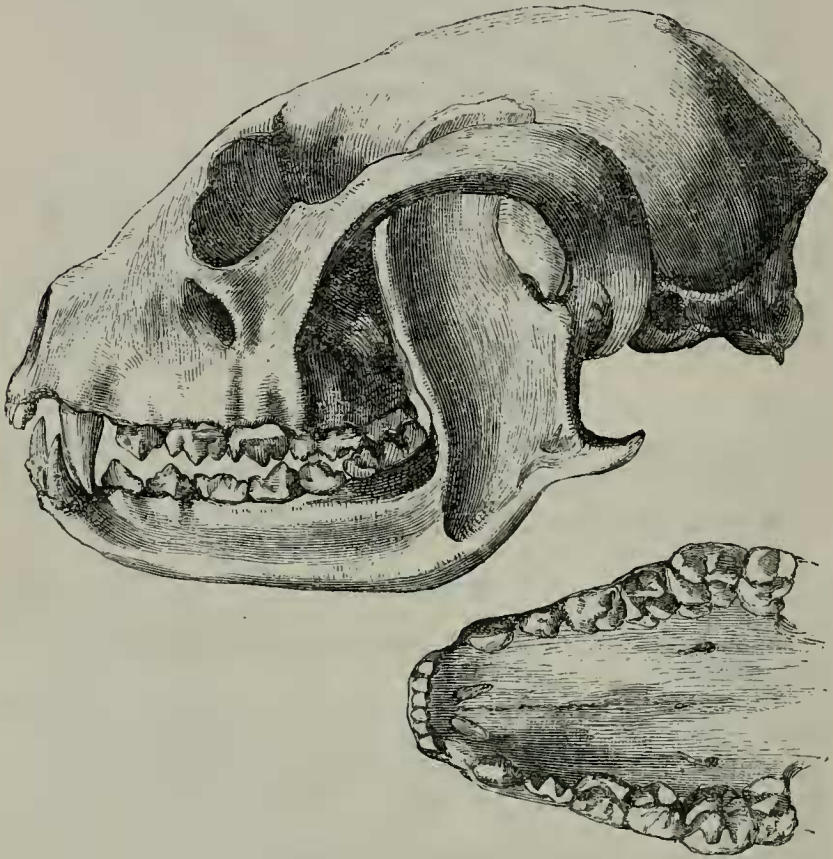
#### AILURUS FULGENS.

B.M.

*Ailurus fulgens*, F. Cuv. Mamm. Lithogr. t.; Hardw. Linn. Trans. xv. 161; Fischer, Syn. Mamm. 157; Gray, Cat. Mamm. B. M. 74; De Blainv. Ostéogr. Subursus, t. 7 (skull imperfect).

*A. ochraceus*, Hodgson, Journ. As. Soc. Bengal, t. 52, 53 (skull).  
*Hab.* India, Nepal (called "Wah") (*Hodgson*).

In the paper above referred to, Mr. Hodgson gives an interesting account of the habits and affinities of the Wah. It walks like the Marten, climbs, and fights with all the four legs at once, like the *Paradoxuri*, and does not employ its fore feet, like the Raccoon, Coatis, or Bears, in eating.



Skull of *Ailurus fulgens*.

Skull ovate; forehead arched; nose short; brain-case ovate, ventricose; the zygomatic arches very large, expanded; crown bent down behind. The palate concave in front between the canine teeth, bent up behind in a line with the tubercular teeth, and suddenly contracted behind them; the hinder opening of the nostrils triangular, narrow in front. Lower jaw very strong, lower edge arched; the ramus very large, elongated, extended far above the zygomatic arch, and bent forwards and then backwards at the tip. Teeth 36; cutting teeth 6/6, regular, the upper lateral larger; canines 1/1, 1/1, upper straight, grooved, lower curved; grinders  $\frac{5-5}{5-5}$ , the first upper conical, triangular; second and third and the tubercular grinders like the flesh-tooth, squarish, with many conical processes, but smaller;







J Wolf. del, et lith

M & N. Hanhart imp

GALAGO GARNETTII.



